DOCUMENT RESUME

ED 060 520 EA 004 034

AUTHOR Klingberg, Gote
TITLE A Scheme for the Classification of Educational Objectives. The LIGRU Project.
INSTITUTION Gothenburg School of Education (Sweden).
REPORT NO R-Bull-5
PUB DATE Nov 70
NOTE 73p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Classification; *Comprehensive Programs; *Educational Objectives; Educational Research; *Evaluation Techniques; Foreign Countries; Literature Appreciation; *Taxonomy
IDENTIFIERS Sweden

ABSTRACT

The LIGRU project is concerned with the objectives, methods, and evaluation of literature instruction in the Swedish comprehensive school. This document presents a taxonomy of educational objectives and evaluation instruments. The resulting scheme, derived from a review of other classification schema, has two dimensions -- goal area and aspect. The goal area defines the content or subject area while the aspect dimension defines the level of behavior (e.g., higher cognitive, emotional, or creative) in any goal area. (RA)

ED 060520

EA
N-FOR

The LIGRU Project

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Göte Klingberg

A SCHEME FOR THE CLASSIFICATION OF EDUCATIONAL OBJECTIVES

EA 003 053

The LIGRU Project

Göte Klingberg

A SCHEME FOR THE CLASSIFICATION OF EDUCATIONAL OBJECTIVES

The LIGRU Project, which deals with the reading of literature at comprehensive school level, comprises a goal analysis of the objectives of the reading of literature and a treatment of the instruments for evaluation, checking the fulfilment of these objectives. A scheme has been constructed for the classification of objectives and evaluation instruments. In view of the fact that such a system may be of interest in other contexts, it is published here separately.

Department of Educational Research
Gothenburg School of Education
November, 1970

N O T E

LIGRU is short for "Litteraturläsning i grundskolan", i.e. -
The Reading of Literature in the Comprehensive School (the Swedish compulsory nine-year school with pupils between 7 and 16 years of age).

The LIGRU Project belongs to the research projects under the Swedish National Board of Education (Bureau L 4) and is being carried out at the Department of Educational Research at the Gothenburg School of Education.

C O N T E N T S

1	AN OUTLINE OF THE LIGRU PROJECT	1
1.1	The background of the LIGRU Project	1
1.2	The purpose of the LIGRU Project and the structure of the investigation	3
1.3	The need for a classification scheme listing educational objectives	5
2	EARLIER CLASSIFICATION SCHEMES LISTING EDUCATIONAL OBJECTIVES	7
2.1	Lists of goal areas	8
2.2	Lists of aspects or hierarchial levels	13
2.3	Two-dimensional models	15
2.3.1	Two-dimensional models with different aspects for different goal areas	16
2.3.2	Two-dimensional models with the same aspects for all goal areas	19
3	A DISCUSSION OF THE REPORTED CLASSIFICATION SCHEMES	22
3.1	The choice between the different types of classification schemes	22
3.2	What is a goal area and what is an aspect?	23
3.3	Which categories are to be chosen as aspects?	25
3.3.1	The cognitive aspects	25
3.3.2	The emotional-conative aspects	28
3.3.3	The creative aspect	30
3.3.4	The functional aspect	30
3.3.5	The aspects defined through verbal forms that may assign descriptions of educational objectives to a certain aspect	31
3.3.6	Is the aspect dimension a hierarchial one?	33
3.4	Which categories are to be chosen as goal areas?	35
3.4.1	What is not to be included among the goal areas	35
3.4.2	The ethical-social area	38
3.4.3	The aesthetic area	39
3.4.4	The areas of mental hygiene and of physical training and health	39
3.4.5	The work-oriented, logic-oriented, and manual areas	40

3.4.6 The language-oriented, society-oriented, mathematics-oriented, and nature- and technology-oriented areas 41
3.4.7 Is the goal area dimension a hierarchial one? 43

4 THE CLASSIFICATION SCHEME 44

5 APPLICATION OF THE CLASSIFICATION SCHEME 49
5.1 Types of investigations that can use the classification scheme 49
5.1.1 Analyses of objectives stated for a school subject 49
5.1.2 Analyses of objectives stated for a school curriculum .. 49
5.1.3 Analyses of objectives stated by schools of educational thought and by educational thinkers 50
5.1.4 Requirement analyses 50
5.1.5 Analyses of evaluation instrument stocks 50
5.1.6 Working-out of aims programmes 50
5.2 Technical problems in the application of the classification scheme 51
5.2.1 The formulation of the goal descriptions 51
5.2.2 The placing of a goal description into two or more cells 55
5.2.3 The graphic and quantitative application of the scheme . 60

6 REFERENCES 65

1 AN OUTLINE OF THE LIGRU PROJECT

1.1 The background of the LIGRU Project

In recent years the reading of literature in the Swedish Comprehensive School has attracted attention in several ways.

1) The aim of instruction in literature

The aesthetic, cultural message and its efficiency have been subjects of discussion, which has, in turn, raised the question of the aim of instruction in literature. Discussion of the aesthetic aims of the school has largely centred on the question of equality. Equality in this connection, however, has acquired two interpretations. One is that efforts to bring about equality should imply that an environment, which may be culturally deficient as regards both home life and the society of school friends, should not be decisive and that it is the task of the school to give all future citizens an equal start in life. The other interpretation of equality is that the culture of certain classes of society must no be regarded by other social groups (for example, representatives of a so-called high culture) as inferior and that the school must therefore accept the culture found amongst the pupils.

It would seem that the Swedish Comprehensive School Curriculum of 1969 has no definite viewpoint on this problem, but reference is made to it in two passages in the general part. "In the work of the school we are daily confronted by questions on which various opinions are held. It can be a matter of ... trends of style or taste. In such questions the school must remain objective ... One reason for this is that the school accepts children and adolescents from all groups and shades of opinion in the community ... The pupil shall have the possibility of seeking his own way and shall be given whatever is necessary for him to assume the responsibility of deciding on and developing his attitude to life. This shall be done with access to factual and all-round information." (P. 41 f.) This could be taken to mean that there is a wish to introduce high culture into the schools so that pupils are aware of what they have to choose between. That the problem is not yet regarded as solved is apparent from the second passage: "Finally we need to define, in certain cases, some valuations in the description of aims, for example in regard to problems of quality within the function of the aesthetic aim." (P. 72.)

The aims of reading literature at school have also been discussed from another standpoint. Literature shall serve aesthetic development, but can also conceivably serve other general educational objectives (e.g. linguistic proficiency, historical and geographical information, the pupils' understanding of themselves, ethical-social development). It is not quite clear whether these aims can be combined nor how. A sub-division of the aims of literary education into various behavioural levels, as attempted in taxonomic work, is also conceivable: to what extent the aim of reading literature is to yield knowledge, to encourage critical thinking, to provide emotional experience, to stimulate creativity, etc.

2) Pupil-analytical problems

Where instruction in literature is concerned, pupil analysis is of the utmost importance for the choice of texts. One requirement could be that the literature to be introduced to the pupils shall be such as to arouse their interest and such as they understand. There is then the problem of high culture and mass culture. Another question is whether special children's or adolescent books should be used or whether adult literature should be studied as soon as possible. The individualization of instruction in literature also demands pupil analyses.

3) Problems of evaluation

The assessment of the activities of the school has been stressed by the Swedish Comprehensive School Curriculum of 1969. It emphasizes an all-round evaluation of the way the school fulfills its aims. For instruction in literature it would seem essential to provide instruments for evaluation. Such instruments come under "the purposeful task of defining and systematizing more accurately evaluation" laid down in the curriculum mentioned (General part, p. 72).

4) Teacher training

Problems concerning instruction in literature have also attracted attention because books for children and adolescents and the relationship of young people to literature have acquired additional importance for the class teacher lines in the schools of education as a result of the 1968 syllabi and are now incorporated as new elements in the training of special subject teachers in accordance with the 1970 University syllabus for Swedish.

1.2 The purpose of the LIGRU Project and the structure of the investigation

The purpose of the LIGRU Project, in general terms, is to work on the problems posed by instruction in literature in the comprehensive school, that is to say, to work on the objectives, methods and evaluation of instruction in literature.

The LIGRU Project belongs to the research projects under Bureau L 4 (for research and development work) of the Swedish National Board of Education and is being carried out at the Department of Educational Research at the Gothenburg School of Education. The project was begun on 1st July 1969, but during the financial year 1969-70 it has provided a salary for only one person (an assistant), and this year is to be regarded as a planning year. The project was set up on 1st July 1970 on a larger scale, i.e. with a full-time director of the project, an assistant and a methods expert (teacher). It is planned to last until 30th June 1972 and will try to provide a theoretical background to the problems of literary education. If a continuation of the work is then regarded desirable and possible (the decision rests with the authorities), a plan for four further years will be formed (1972-76). In this second phase it seems natural to complete the work with an empirical testing of methods of instruction and instruments for evaluation. In the case of these field testings children from one particular school year should be studied throughout one entire stage at least (the Swedish Comprehensive School has three stages each of three years' duration). Possibly such an experiment can be tried out simultaneously on two or three stages. The time required would then be three years. One more year would then be required for the final working out of instructions on methods and instruments for evaluation. In view of the fact that the forms of individualization should be of special interest, it is desirable that pupil analyses should be undertaken parallel to and in combination with these testings.

The purpose of the phase now in progress is, as said above, to provide a theoretical background to literary education, a basis on which political decisions as to the objectives of this education could be taken and which could furnish suggestions for practical work in school. The research work comprises:

1) Goal analysis.
2) Collection of methods of instruction and instruments for evaluation.

1) The first object of the goal analysis is to construct a list (if possible in behavioural terms) of all conceivable objectives of literature instruction in the school. This list is intended to constitute a theoretical basis for the ensuing work of goal analysis. The work began with a collection and cataloguing of definitions of the aim of instruction in literature. Source material was Swedish and foreign syllabi, teachers' manuals, articles and pamphlets, etc. The aims encountered are often of a very diffuse and vague character. More strictly defined objectives are encountered from time to time, however. All definitions are registered on cards and formulated (when possible) in behavioural terms. The underlying principle is that these definitions of aims could be arranged in accordance with a scheme of classification covering the general objectives of the school. If the material examined is sufficiently large, it should be possible to find so many aims described in parallel terms that among these may be found formulations which correspond to the demands educational research makes on descriptions of terminal behaviour, or which, in any case, can be re-formulated to meet these requirements.

A sufficiently clear list of the conceivable aims of literature instruction at school facilitates a requirement analysis as regards the problem high culture - mass culture, and with emphasis on various curriculum areas and levels (aspects). LIGRU intends, therefore, to collect the views of various groups on the object of reading literature. The instrument could be constructed on the basis of the theoretical analysis of the conceivable aims. One of the objects of the project is to stimulate the discussions already held and, if possible, to introduce them to new groups of citizens. Requirement analyses (empirical goal analyses) would appear to serve this purpose.

The final object of the goal analysis is to obtain clearer formulations of the sub-goals of instruction in literature, goals which are already to be found in somewhat vague forms in the Swedish Comprehensive School Curriculum of 1969 or goals which may appear in the course of the requirement analysis, and to arrange them in sequence on a logical basis.

2) The aims set up for instruction in literature must be attained by methods suitable for the purpose, and it must be possible to check the results by means of suitable instruments for evaluation. Methods employed in Sweden and abroad will be collected and catalogued to

provide material for discussion. Similarly, existing instruments for evaluation will also be collected and catalogued, although fresh constructions for them will probably be necessary. Since these instruments must refer not only to cognitive but also to non-cognitive aims, work on the instruments for evaluation ought to help bring about a change in the work of the school in favour of a more all-round surveyal of its general objectives.

1.3 The need for a classification scheme listing educational objectives

As stated above, it was thought that the collection of the descriptions of aims of instruction in literature should be catalogued according to a classification scheme covering the general objectives of the school. The instruments for evaluation should also be arranged in accordance with the same scheme as there is a close link between objectives and evaluation. Possibly such a scheme could also be of use for the collection of methods.

For the scheme of classification the intention was to use from the outset, those general aims of the activity of the school listed by the Swedish Education Committee of 1957, these are also found in the Swedish Comprehensive School Curriculum of 1962, or the later revision of them expected in the Curriculum of 1969. In the course of the work it was found, however, that none of these lists was wholly suitable for the purpose. Following a study of various taxonomic works already in existence, LIGRU began the construction of its own scheme of classification. A two-dimensional scheme has been devised which, it is felt, serves the purpose intended. Several members of our department took part in the discussions which led to the final shape of this scheme and there will sometimes be a reference to these discussions in the following pages. I would like to express my gratitude for this help.

The classification scheme is an integral part of the work of LIGRU but it was decided to publish it in a separate report as the scheme and the discussion that led to it could also be of interest in other contexts. There may be a need to analyse the aims of other "subjects" in a similar fashion. Comparisons may be made between aims as they are understood in various social groups, at various times, and in different countries. Although the scheme is not intended to be normative, it could be of some interest in practical work. It could, for example,

be of assistance to those responsible for planning syllabi by illustrating what types of objectives can be laid down. Certain conceivable objectives may be rejected, but it will be less easy to overlook them.

+

Various taxonomic works were studied as a basis for the work on the classification scheme proposed here. A survey of earlier schemes will be given in chapter 2. A discussion of the reported classification schemes is then reproduced in chapter 3, leading to the final form of the system: chapter 4. Lastly, in chapter 5, there is a treatment of the possible applications of the scheme.

2 EARLIER CLASSIFICATION SCHEMES LISTING EDUCATIONAL OBJECTIVES

As a basis for further discussion there follows a review of some classification schemes. Several American examples and one German will be compared with the schemes produced in Swedish school reform work.

A division of these schemes into types is not easily made. Taba (1962, 211) suggests that there are three different types: 1) description of behaviour, 2) description of content, and 3) "a two-dimensional model by a description of behavior and of the content to which this behavior applies". There are intermediary forms, however.

Certain schemes (e.g. Bobbit or The Swedish Education Committee of 1946) list a series of objectives that may be regarded as content-oriented, even if they speak of behaviour (activities), e.g. Bobbit: language activities, religious activities, unspecialized practical activities, etc. But sometimes content-oriented and behaviour-oriented objectives are mixed. Thus the Swedish Comprehensive School Curriculum of 1969 mentions content-oriented general objectives such as aesthetic and social, and also cognitive and emotional "functions" which are behaviour-oriented goals. In this latter case there is only one list of objectives, however, so that one nevertheless could speak of a series of goal areas. In the following such lists are assembled under the heading "Lists of goal areas"(2.1).

Other lists of educational objectives are clearly given as behaviour-oriented with no statement of content (e.g. Taba). Such categories will here be called aspects. When the categories are arranged in hierarchial order one may speak of levels. These systems are brought under the heading "Lists of aspects or hierarchial levels" (2.2)

The two-dimensional type has two sub-types. Either different aspects are used for the different goal areas or the same aspects are used for all goal areas. In certain cases there is a difficulty, however, in that the goal areas are not content-oriented or not exclusively content-oriented. In the work of Bloom and associates there are three "domains", the cognitive, the affective, and the motor-skill, and for each of these domains there is a series of hierarchial levels. So this system may be seen as two-dimensional. In the German LOT-Project these three domains are presented as "classes of behaviour", however, and there is another list of "classes of content". In the following there

is only a formal division, so that two-dimensional systems are brought together (2.3) and divided into systems that use different aspects for the different goal areas (2.3.1) and systems that use the same aspects for all goal areas (2.3.2). The problems that arise through this division will be dealt with later in the discussion in chapter 3.

2.1 Lists of goal areas

Bobbit (1924)

Lists of goal areas may be short or very extensive. Franklin Bobbit (How to make a curriculum, 1924, quoted from Brubacher 1966, 284) presented a short one:

language activities
health
citizenship
general social contacts
keeping mentally fit
leisure occupations
religious activities
parental responsibilities
unspecialized practical activities
vocational activities

Eight-Year Study of the Progressive Education Association: Smith and Tyler (1942)

The Eight-Year Study gave the following list of 10 goal areas (Smith and Tyler 1942, 18). It should be pointed out that Taba (1962, 209) uses the list somewhat freely.

the development of effective methods of thinking
the cultivation of useful work habits and study skills
the inculcation of social attitudes
the acquisition of a wide range of significant interests
the development of increased appreciation of music, art, literature, and other esthetic experiences
the development of social sensitivity
the development of better personal-social adjustment
the acquisition of important information
the development of physical health
the development of a consistent philosophy of life

Russell Sage Foundation, Goals in High School: French (1957)

The Russell Sage Foundation, in co-operation with The National Association of Secondary School Principals and The Educational Testing Service, published a work on the goals in high school (French and Associates 1957). This is a very extensive listing. The headings are the following:

1. Growing toward self-realization
1.1 Developing behaviors indicative of intellectual self-realization
1.2 Developing behaviors indicative of growth toward cultural orientation and integration
1.3 Developing behaviors indicative of growth toward personal mental and physical health
1.4 Developing behaviors indicative of growth toward economic literacy and independence
2. Growing in ability to maintain desirable small (face-to-face) group relationships
2.1 Developing behaviors indicative of intellectual growth and development
2.2 Developing behaviors in small group situations indicative of cultural orientation and integration
2.3 Developing behaviors involved in maintaining physical and mental health and safety in small (face-to-face) group situations
2.4 Developing behaviors indicative of growth toward economic competence and independence in small group situations
3. Growing in ability to maintain the relationships imposed by membership in large organizations
3.1 Developing behaviors indicative of intellectual growth and development
3.2 Developing behaviors indicative of growth toward cultural orientation and integration
3.3 Developing behaviors indicative of understanding problems of mental and physical health
3.4 Developing behaviors indicative of growth toward economic competence and independence

Under these headings there are sub-headings. As an example the paragraph 1.2 may be reproduced:

1. Growing toward self-realization
- - - - - - - -

1.2 Developing behaviors indicative of growth toward cultural orientation and integration

1.21 Revealing the personal understandings and characteristics of the good citizen

1.22 Attaining a perspective on present-day events, cultures, and conditions

1.23 Attaining orientation to the physical world and appreciation of what scientific advancements mean to the world

1.24 Improving in ability to apply ethical values as gained from religion, philosophy, and direct experience to own decisions and behavior

1.25 Developing aesthetic and artistic appreciations.

The goals are then broken down again.

The Swedish Education Committee of 1946 (1948)

The Swedish listings of goal areas have been of the shorter type. The list of the Education Committee of 1946 (Skolkommission, 1946 års, 1948, 23-38)(if we ignore the first point - care of pupils - which is hardly a goal in our sense) is as follows:

education in study skills
linguistic and mathematical skills
all-round education
aesthetic education
practical education
vocational education
health education
social education
personality formation (described as a synthesis of the other aims)

The Swedish Education Committee of 1957 (1961)

With the aid of print types used and inserted italics it is possible to produce a list of general educational objectives described in 1961 by the Education Committee of 1957 (Skolberedning, 1957 års, 1961, 150-181):

individual education
    developing the pupil's personality
        intellectual schooling

emotional development
aesthetic education
development of the volitional life
ethical education
work education
education for leisure time
health education
education for family life
basic knowledge and skills
linguistic skills
mathematical skill
information about surrounding reality and the past
social education

The Swedish Comprehensive School Curriculum (1962)

The Swedish "grundskola" curriculum of 1962 (in the reference list: Skolöverstyrelsen 1962; in the following abbreviated as Lgr 62) is based on the exposition of the Education Committee of 1957. Thus its list of the general educational aims, although not so explicit (Lgr 62, 13-18) tallies with that of the Education Committee.

The Swedish Comprehensive School Curriculum (1969)

In the new "grundskola" curriculum of 1969 (in the reference list: Skolöverstyrelsen 1969, that is the general part I; in the following abbreviated as Lgr 69) there are two separate lists of general aims. One is a section (12-15) resembling and, to a great extent, taken verbatim from Lgr 62. The other is an entirely new list presented in connection with the treatment of evaluation (71-73).

The first of these sections is less explicit than the corresponding part in Lgr 62. It is possible to discern the following objectives, however (partly with the help of italicized words):

schooling of the intellect (13)
enrichment and developing of the emotional life (13, on p. 42 the term emotional deepening is used)
development of the volitional life (13)
creating pleasure in one´s work (13, interest in studies, p. 14, presumably belongs to this category)
directing one´s attention towards active contributions to social life (14)

directing one's attention towards giving a developing and valuable content to the leisure time (14)
cultivation of the inclination towards aesthetic values (14)
awakening the interest in the conception of life and the outlook on society (14)
imparting knowledge and habits concerning mental and bodily health (14)
social development (14-15)
basic training in knowledge and skills (12, cf. 10)

There is also evidence here of the dichotomy between individual and social education found in the Education Committee of 1957 and in Lgr 62, as the expressions "individual development" and "the social development of the pupils" are found in the margin.

The second section makes a division into six "goal functions":

cognitive functions (acquisition and application of knowledge and skills in the school subjects)
manual functions (ability and skill in manual work)
emotional functions (manifestations of emotional and volitional maturity)
aesthetic functions (ability to experience and express aesthetic values)
physical functions (physical and physiological adaptation to external conditions of life)
social functions (manifestations of participation in a community and ability to co-operate)

Discussions of the goal areas in the Swedish Comprehensive School Curriculum of 1962 (1968-69)

Before the publication of the curriculum of 1969, two Swedish projects of educational research have discussed the general educational objectives, e.g. the listing of goal areas given by the Education Committee of 1957. The project "SK" (which deals with civics in the higher stages of the comprehensive school, the "grundskola") has published a report, "Analysis and interpretation of the objectives of the'grundskola'" (Dahlgren et alia 1968). The project "Social development and training in the 'grundskola'" has treated the concept social training and its relation to other goals (Yebio 1969). (Dahlgren et alia treat the listing of the Education Committee of 1957, Yebio, the objectives in Lgr 62, which, in fact, is the same).

Both reports point out that the boundaries between the different goals in Lgr 62 are diffuse and that the objectives to some extent overlap. In the report from the project SK Per Sjöstrand thus emphasizes that he found it difficult to separate the different objectives and maintains that it may be because some of them are to be seen as a means of obtaining other objectives (65). He has designed a paradigm (66) illustrating the relations between different objectives. I.a. he indicates the connection between ethical education and education for family life and that between aesthetic education and education for leisure time.

Yebio has treated the concepts of personality education, individual education, social education, and ethical education and finds that personality education is a superior goal that can be divided into the lateral objectives, individual education, social education and ethical education. These overlap to a certain degree, however (6-7). The difficulties that arise are illustrated if one pictures the hierarchy of the goals mentioned, as given in Yebio and in Lgr 62 (Figure 1).

+

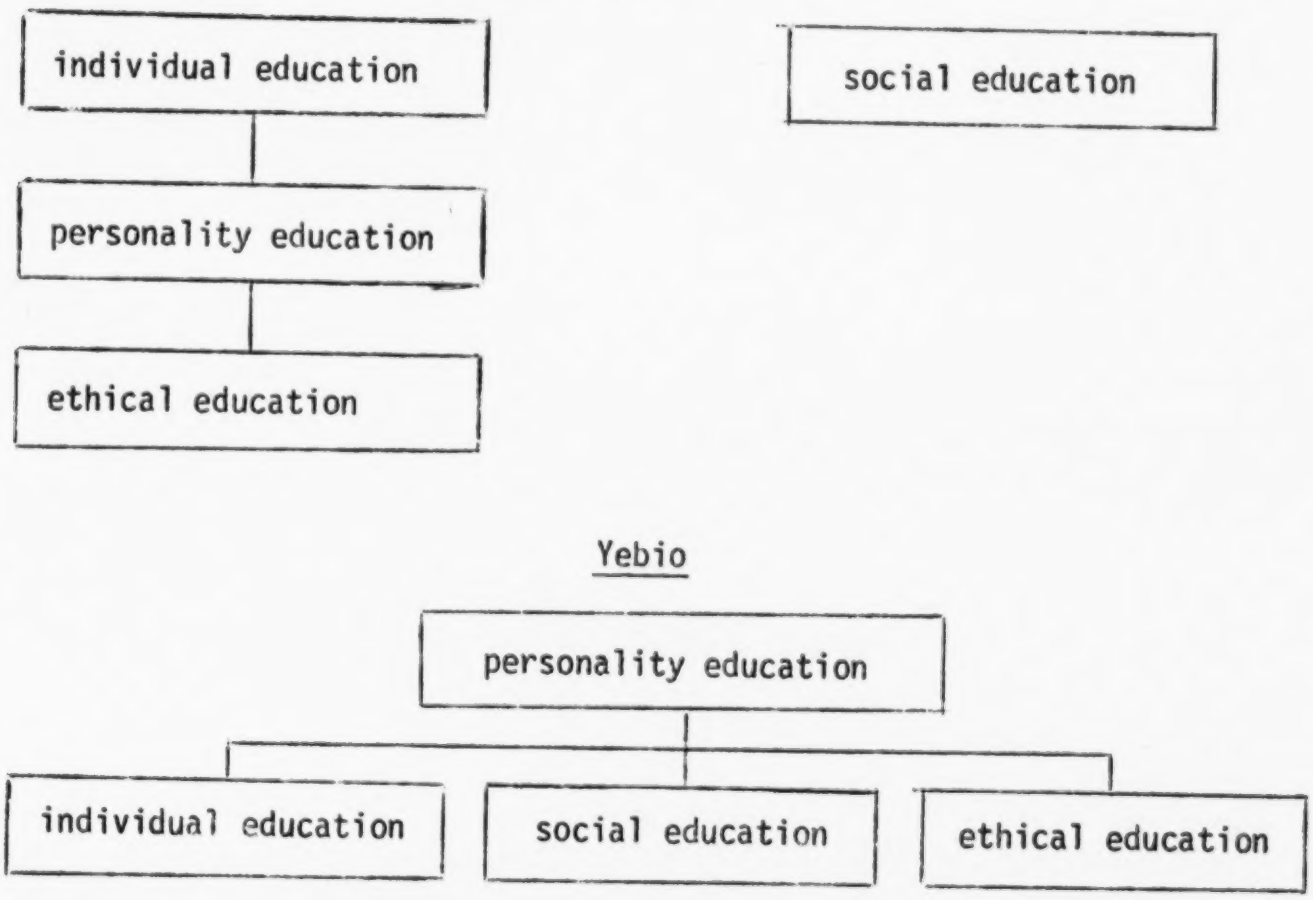
That no one is wholly satisfied with the Swedish listings of goal areas is also evident from Lgr 69 (General part, 72), where it is said that the division inte the six "goal functions" previously mentioned makes no claim to be complete or definitive. Instead it is hoped that it will be "the starting-point for a purposeful work to precise and systematize evaluation."

2.2 Lists of aspects or hierarchial levels

Taba (1962)

Hilda Taba (1962, 211) touches "the advantage" and "the difficulty" of a two-dimensional model (of the type dealt with below under section 2.3). It seems that she is of the opinion that one has either to classify according to content or according to behaviour. "Recently", it is said, "classification by types of behavior has been favored because it seems more functional as a basis for curriculum development and for evaluation than classification by content." Her list of "types of behavioral objectives"is as follows (1962, 211-228):

Figure 1. The relations between some goal areas according to Lgr 62 and Yebio (1969)



knowledge: facts, ideas, concepts
reflective thinking
    interpretation of data
    application of facts and principles
    logical reasoning
values and attitudes
sensitivities and feelings
skills

Scriven (1967)

This list is to be found in Michael Scriven (Scriven 1967, 74-76):

knowledge
comprehension or understanding
motivation (attitude/values/affect)
nonmental abilities
(noneducational variables)

The listing is dependent on the taxonomies of Bloom and associates (see below under 2.3.1). With "comprehension or understanding" are assembled "application", "analyzing", "synthesizing" and "evaluation". In "nonmental abilities" are included "perceptual ability", "psychomotor ability", "motor ability" and "social skills".

2.3 Two-dimensional models

Eight-Year Study of the Progressive Education Association: Smith and Tyler (1942)

The Eight-Year Study presented a list of 10 goal areas reproduced above under 2.1. There is a short passage, however, that gives an idea of a two-dimensional model (Smith and Tyler 1942, 13):
"We must not forget that the human being reacts in a fairly unified fashion; hence, in any given situation information is not usually separated from skills, from ways of thinking, or from attitudes, interests, and appreciations. For example, a student who encounters an important social-civic problem is expected to draw upon his information, to use such skill as he has in locating additional facts, to think through the problem critically, to make choices of courses of action in terms of fundamental values and attitudes, and to be continually interested in better solutions to such problems."

No two-dimensional model is given, however. Had such a model been proposed, it seems that it would have been of the type called here a model with the same aspects for all goal areas (2.3.2).

2.3.1 Two-dimensional models with different aspects for different goal areas

Bloom and Associates (1956 and 1964)

The hierarchial taxonomies of Benjamin S. Bloom and his associates may be regarded as representing a two-dimensional system as there are three "domains": the cognitive, the affective and "the manipulative or motor-skill area" (Bloom et alia 1957, 7; in Krathwohl et alia 1964, 6, mention is made of "the psychomotor educational objectives").

In the cognitive area the hierarchial levels can be said to be either two or six as there is not only a distinction between "knowledge" and "intellectual abilities and skills" but also a division of the latter into five levels. The affective levels are five. For the understanding of these "affective" levels it is of interest that the more common terms "interest" and "appreciation" are said to concern the levels "receiving", "responding" and "valuing", the terms "attitudes" and "value" the levels "responding", "valuing" and "organization", and the term "adjustment" the levels "responding", "valuing", "organization" and "characterization by a value or value complex" (Krathwohl et alia 1964, 37, Figure 1). The taxonomy of the motor-skill area is not yet finished.

The system is thus:

Cognitive domain	Affective domain	Motor-skill (Psychomotor) domain
knowledge	receiving	(not finished)
intellectual abilites and skills	responding	
comprehension	valuing	
application	organization	
analysis	characterization by a value or value complex	
synthesis		
evaluation		

Research for Better Schools (1969)

Another American two-dimensional system has been published in "Basic Program Plan. Humanizing Learning Program" (Research for Better Schools 1969, H 22 - H 39). Here, the "cognitive" and "affective" domains of the Bloom group are put together with a third area, "interpersonal domain" (that is social education). It is said that the "psychomotor domain" is not unimportant although it is excluded.

In the question of "the cognitive (intellectual) domain" there is reference to Bloom (1956). His six levels are simplified to three, however: 1) "data recall", corresponding to "knowledge", 2) "data processing", corresponding to "comprehension", "application", "analysis" and "synthesis", 3) "evaluation", corresponding to "evaluation". (This simplification is in agreement with Simon and Boyer 1967, 8-10.) "Data processing" and "evaluation" are put under one heading, however - "higher order cognitive", while "data recall" is under the heading "low order cognitive". Thus the category system for the cognitive area proposed by Research for Better Schools may also be said to have two levels only: "low order cognitive" and "higher order cognitive".

"The affective domain" is called "self actualization". Krathwohl et alia (1964) and their five levels are quoted but the affective system of Research for Better Schools has only three levels. The "interpersonal domain" has six levels.

The system is thus:

Cognitive domain	Interpersonal domain	Self actualization (Affective domain)	Psychomotor domain
low order cognitive	role recognition	the enhancement of the ability to be aware of cultural variations and their impact on personal response patterns	(not treated)
data recall	role flexibility		
higher order cognitive	developing awareness of, and being able to constructively utilize individual differences		
data processing			
evaluation	recognition of, and skills in creating many group climates	awareness of self and others	
	developing skills in influence strategies	self-assurance and responsibility in approaching and controlling the environment	
	development of communication skills through the use of technical languages for describing human interaction		

The Swedish Comprehensive School Curriculum (1969) and the preparatory work in the National Board of Education (Marklund 1969)

The Swedish Comprehensive School Curriculum of 1969 was treated above as there are two lists of goal areas in this curriculum. In the comment to the latter of these lists (the division into six "goal functions") there is a hint of a two-dimensional system, however, since "simple cognitive memory functions" are mentioned (General part, 73), as are "higher levels of cognitive goal functions" (72) and "the result development from simple and more independence-lacking results to more advanced manifestations of application and creative ability" (72).

What is no more than an idea of a two-dimensional model in the Curriculum may be seen in more detail in the preparatory draft drawn up by Sixten Marklund, a member of the National Board of Education. It is of interest in this connection, as it is, so far, the only two-dimensional model drawn up in Sweden. As it was working-material for internal use the draft has not been printed. I have permission to quote it here, however. The six "goal functions" appear as goal areas and each of these has three to six hierarchial levels. The hierarchies of the cognitive and emotional "functions" are dependent on the hierarchies of the cognitive and affective domains of the Bloom group. The system is the following (according to the summary in Marklund 1969):

Cognitive functions	Manual functions	Aesthetic functions
Knowledge acquired by memorizing	Explorations	Structurizing
Understanding and interpretation	Manipulations	Production
Application	Working processes	Function
Analysis	Constructions	
Synthesis		
Evaluation		

Physical functions	Emotional functions	Social functions
Physical health	Attention	Social observation
Physical achievement ability	Response	Tolerance and gratitude
Physical adaptation	Taking a position	Active co-operation
	Organizing of valuations	Social creativity

2.3.2 Two-dimensional models with the same aspects for all goal areas

Mid-Century Committee on Outcomes in Elementary Education: Russell Sage Foundation: Kearney (1953)

A two-dimensional model with the same aspects for all goal areas is found in the work dealing with the goals of the elementary school published by the Russell Sage Foundation (Kearney 1953). The goal areas are called "curriculum areas" and the aspects "types of behavioral change".

The "curriculum areas" are:

physical development, health, body care
individual social and emotional development
ethical behavior, standards, values
social relations
the social world
the physical world
esthetic development
communication
quantitative relationships.

As "types of behavioral change" are listed

knowledge and understanding
skill and competence
attitude and interest
action pattern.

The following definitions of "the types of behavioral change" are given (Kearney 1953, 36):

"Know and understand... refer to things that are memorized, or that are understood so well that they can be easily recalled.

The skills that average children should be able to use without careful thought and planning, and the intellectual competences that children should be able to exercise in making decisions and judgments, in being resourceful, in meeting difficult problems, in examining new and difficult data, and so on.

The third column provides for items concerned with the basic needs and drives of human beings - the exercise of will, the play of emotion - as these are shown in interests and attitudes.

Action patterns refer to broad generalized ways of behaving, such as ways of responding to problem situations through the union of intelligence with good working habits and scientific methods of thinking."

The two-dimensionality of his model is illustrated by Kearney (1953, 38) through a grid. That the objectives may be different in different age levels is visualized, too, so that the model really is a three-dimensional one.

Arbeitsgruppe für Unterrichtsforschung der Universität Konstanz: LOT-Project: Flechsig et alia (1970)

A two-dimensional model with the same aspects for all goal areas is also used by the "LOT-Projekt" in Konstanz, Germany. For "elementary education" there is a matrix with "classes of content" on the one axis and "classes of behaviour" on the other (Flechsig et alia 1970, 24). The "classes of content" are:

symbolic systems
- pre-logical systems
- linguistic systems
- logical systems
- other symbol systems

understanding of the world around
- natural-science facts
- anthropological and social-science facts
- art

changes in the world around
- technology
- politics
- education/behaviour controlling

guarantee of existence
- bodily training
- health/hygiene
- transport sources (traffic, electricity etc.).

The "classes of behaviour" are influenced by the work of the Bloom group. The following classes are enumerated:

cognitive domain
- verbal associations
- multiple discrimination

concept learning
principle learning
problem solution
affective domain
receiving
responding
valuing
organization of a value system
characterization by a value complex
psychomotor domain
visual, auditory, tactile discrimination
gross motor behaviour
space-position-discrimination
fine motor behaviour.

3 A DISCUSSION OF THE REPORTED CLASSIFICATION SCHEMES

3.1 The choice between the different types of classification schemes

As mentioned above, Taba (1962, 211) discusses which model for classifying educational objectives would be the best. She rejects the two-dimensional model and says that either a description of the content or a description of behaviour could be used. Her choice is the classification by types of behaviour.

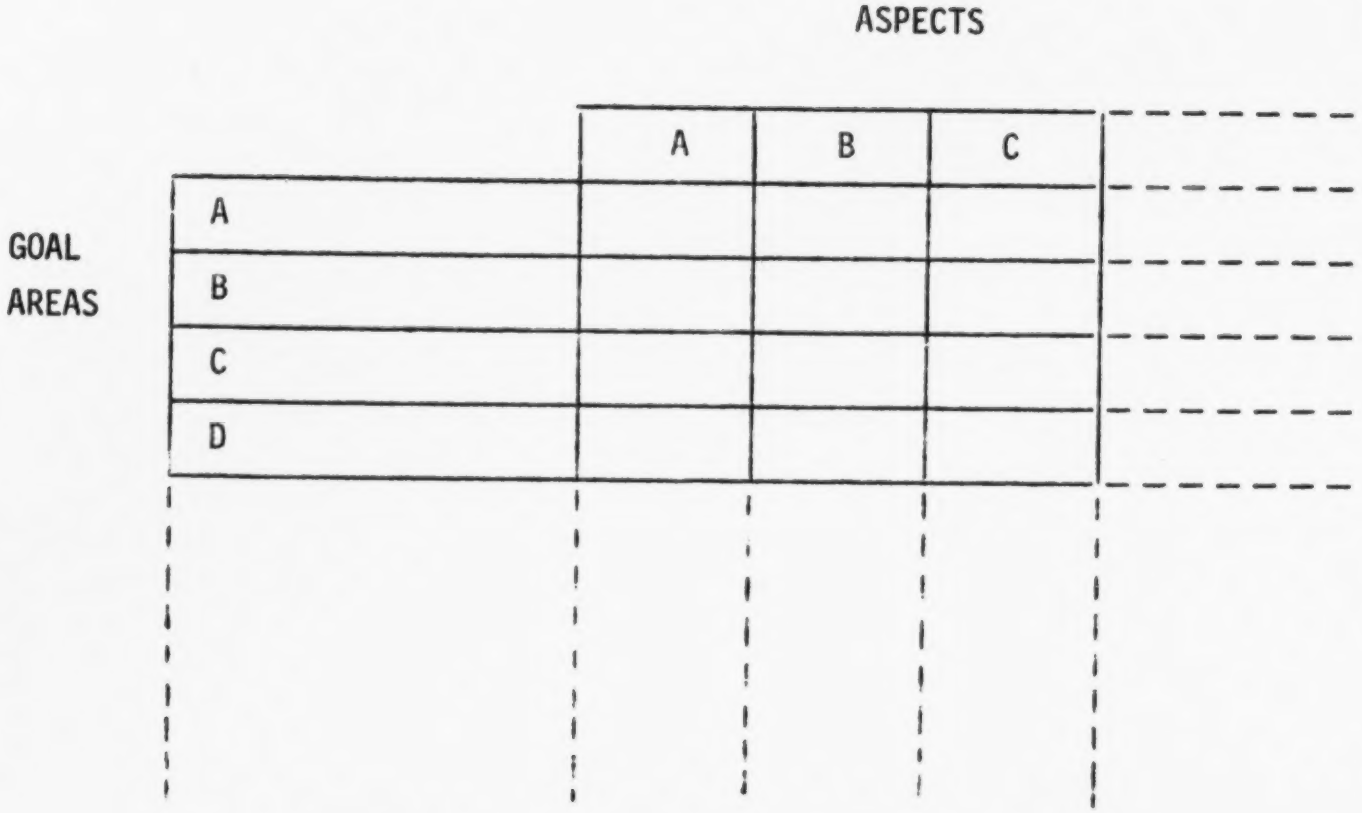
It goes without saying that the more modern classification systems (taxonomies) according to type of behaviour (e.g. the work of the Bloom group) have been of the utmost importance for curriculum development and for evaluation. However, no one system of classification will cover every angle. There are different situations where taxonomies could be used. (There are, of course, more and less appropriate taxonomies for a special use.)

The universally known and used taxonomies of the Bloom group are meant to improve examination test construction. In this connection the content may be of lesser importance. For the purposes of the LIGRU Project and for other similar work, content is equally important as type of behaviour, however. So, it is a material question if one wishes to improve vocabulary, to give moral instruction, or to teach aesthetics through literature. For this reason, a two-dimensional model has been chosen here.

In the choice between a model with different aspects for different goal areas and a model with the same aspects for all goal areas, the latter is to be recommended:

1) This system is the simpler and can be more easily learned.
2) As will be shown later it is suited for quantitative comparisons, and when the marks are added up it is possible to sum up in both dimensions.
3) It may be practical, in different analyses to change the number of goal areas. Thus, in one analysis one may regard society-oriented goals as one area, in another there is perhaps reason for dividing this area into several others, e.g. history-oriented, economy-oriented, conception of life-oriented goals. With the same aspects for all goal areas there is then no need to construct new aspects for every new area.

The skeleton of the classification scheme presented here will thus have the following appearance:



3.2 What is a goal area and what is an aspect?

A survey of the different systems referred to above shows that the distinction between goal areas and aspects (levels) are somewhat confused. Thus, emotional development is seen as a goal area by the Swedish Education Committee of 1957 (1961), the Swedish Comprehensive School Curricula of 1962 and 1969, Bloom and Associates (1956 and 1964) and by Research for Better Schools (1969), but as an aspect (level) by Kearney (1953), Taba (1962), Scriven (1967) and by Flechsig et alia (1970). The three "domains" of the Bloom group, the cognitive, the affective and the psychomotor, seem to be presented as goal areas, but in Flechsig et alia they appear as "classes of behaviour".

In the classification scheme presented here the question what a goal area is and what an aspect (level) is, is solved by these definitions:
A goal area is defined by its content and thus has a limited range.
An aspect is defined by a type of behaviour and belongs to all goal areas.

If one examines the six goal "functions" given by the Swedish Comprehensive School Curriculum of 1969 and arranged as six goal areas, it seems obvious that four of these are goal areas in our sense (manual functions, aesthetic functions, physical functions, and social functions), but that two are aspects (cognitive functions and emotional functions). The latter are defined as "manifestations of emotional and

volitional maturity". Thus, conation is here included in the emotional category. We find here the division of classical psychology into cognitive, emotional, and volitional "life". It could be said to be a "complete" list of the acts of the mind, and these acts must, therefore, be important for all fields in school.

The problems that arise from a non-observance of the distinction between goal areas and aspects, will be exemplified here through the relationships between emotional and aesthetic goals, between emotional and work education goals, and between emotional and ethical education goals in the Swedish Comprehensive School Curricula of 1962 and 1969.

1) In the first goal analytical passage in the Swedish Comprehensive School Curriculum of 1969 "enrichment and developing of the emotional life" is given as a goal area, and is exemplified by the terminal behaviour "apprehends art, literature, music, and nature" (Lgr 69, General part, 13). As mentioned above, emotional as well as aesthetic "functions" are listed as goal areas in the second goal analytical passage in this curriculum (Lgr 69, General part, 72). Here, the aesthetic "functions" are defined as "the ability to experience and express aesthetic values". Thus, "apprehending art, literature, music, and nature" must be one thing (an emotional category) and "experiencing aesthetic values" another (an aesthetic category). This is impossible, however. Emotional and aesthetic "functions" are not both goal areas in our sense. Emotional experiences belong to the aesthetic province, but to other provinces, too. The emotional category is an aspect, not a goal area, the aesthetic category a goal area, not an aspect.

2) In the report in 1961 by the Swedish Education Committee of 1957 and in the Comprehensive School Curriculum of 1962 not only are "emotional development" and "aesthetic education" presented as lateral to one another but also as lateral to, for example, "work education" and "ethical education". (In fact, the passages dealing with work education and ethical education are retained in Lgr 69, also, although the words "work" and "ethical" are omitted for some reason or another, cf. Lgr 62, 16 with Lgr 69, General part, 13.) Thus, Lgr 62 and Lgr 69 agree that work education has two meanings: 1) to create joy in one's work, and 2) to teach the pupils to plan their work in an appropriate way. Thus, we find here a description of an emotional act and of a cognitive act. It follows that "emotional development" and "work education" are not lateral to one another. Work education may be seen as a goal area, but not emotional development.

3) According to Lgr 62 ethical education means two things: 1) recognition of society's need of ethical norms, 2) knowledge of ethical concepts. Thus, only a cognitive aspect is presented. But the emotional aspect is possible in this connection, too, and this was formulated in Swedish school reform work by the Education Committee of 1940, in a report from 1944: "The school must utilize the child's spontaneous reaction (emotional and volitional) to the teaching material and should encourage it to judge independently in ethical questions. It should also promote a favourable response in their emotional life to the ethical norms which are present in this material." (Skolutredning, 1940 års, 1944, 57 f.). So there is an emotional as well as a cognitive aspect of ethical education. Ethical education is a goal area.

3.3 Which categories are to be chosen as aspects?

3.3.1 The cognitive aspects

As mentioned above, the cognitive, emotional, and conative aspects are the old "lives" of classical psychology. They must,therefore, be important for all fields of activity in school.

In the classification systems reported, there are different types (levels) of cognition:

Kearney (1953)

knowledge and understanding
skill and competence (defined
i.a. as the intellectual
competences that children
should be able to exercise
in making decisions and
judgments, in meeting
difficult problems, in
examining new and difficult data)

Taba (1962)

knowledge: facts, ideas, concepts
reflective thinking
interpretation of data
application of facts and principles
logical reasoning

Bloom and Associates (1956)

knowledge
intellectual abilities and skills
- comprehension
- application
- analysis
- synthesis
- evaluation

Scriven (1967)

knowledge
comprehension or understanding

Swedish National Board of Education (Marklund 1969)

knowledge acquired by memorizing
understanding and interpretation
application
analysis
synthesis
evaluation

Research for Better Schools (1969)

low order cognitive
- data recall

higher order cognitive
- data processing
- evaluation

LOT-Project (1970)

verbal associations
multiple discrimination
concept learning
principle learning
problem solution

Some of the terms used are rather difficult as they may easily be misunderstood. So, the terms "comprehension" and "understanding" and their relation to "knowledge" are interpreted differently by various authors. Scriven has "knowledge" as one level and "comprehension or understanding" as another. To this latter level belong the Bloom levels "application", "analysis", "synthesis" and "evaluation". In Kearney, on the other hand, "knowledge and understanding" are brought together and are separated from "skill and competence". To "competence" is joined i.a. the ability to judge.

It is obvious that there is a tendency in the different systems to have two main levels, - in the words of the Research for Better Schools - a lower and a higher order. The Swedish Comprehensive School Curriculum of 1969 is also satisfied with two levels, "to acquire and to apply" (Lgr 69, General part, 71), "good basic knowledge on one hand and general ability to use sources of knowledge, apply one´s knowledge and grasp the connection between facts on the other hand" (Lgr 69, General part, 12). To "use sources of knowledge" and to "apply one´s knowledge" may be regarded as the "application" of Bloom, to "grasp the connection between facts" as the"analysis" of Bloom.

At the beginning of the work with the classification system proposed here it was thought advisible to have three cognitive levels: knowledge, application and judging. The aspect "application" then corresponded to the "application" of Bloom, and in the system of Kearney to the "skills" but not to the judgment included in "competence". The aspect "judging" was regarded as an analogue to the "analysis" as well as to the "evaluation" of Bloom. These two levels of Bloom seem to be close to each other: judgment in terms of external criteria (for instance of a literary work), which is one of Bloom´s examples of "evaluation", is associated with the analysis of organizational principles (for example the structure of a literary work), which is one of Bloom´s examples of "analysis".

As the term "application" in our discussion was often confused with the "functional aspect" (see below), this aspect was finally eliminated, however. For our purpose it seems sufficient to have two levels of cognition, a lower and a higher. (It may be pointed out that the "synthesis" of Bloom is left aside for the moment; it will reappear in connection with the proposed creative aspect.)

The higher cognitive aspect is thus named. For the lower aspect the

term "knowledge" is avoided, however, and replaced by "reproduction". It includes what is generally called knowledge (the "data recall" of Research for Better Schools). But the concept of "reproduction" will comprise motor knowledge, too (that is reproduction of movements). (So, there is no need of a special behaviour-oriented motor group of aspects as is proposed by the Bloom group, Scriven, Research for Better Schools, and the LOT-Project. Manual objectives are regarded here as a content-oriented goal area.)

3.3.2 The emotional-conative aspects

The Swedish Comprehensive School Curriculum of 1969 has defined the "emotional functions" as "the pupil's manifestations of emotional and volitional maturity" (Lgr 69, General part, 72). Here, the emotional-conative aspects thus are brought together. In the systems referred above we find the following headings in this field:

Kearney (1953)

attitude and interest

Taba (1962)

values and attitudes
sensitivities and feelings

Scriven (1967)

motivation (attitude/values/affect)

Bloom (Krathwohl) and Associates (1964)

receiving, responding, valuing, organization, characterization by a value or value complex } interest, appreciation } attitudes, value } adjustment

LOT-Project (1970)

receiving
responding
valuing
organization of a value system
characterization by a value complex

Marklund (1969)

attention
response
taking a position
organizing of valuations

Research for Better Schools (1969)

the enhancement of the ability to be aware of cultural variations and their impact on personal response patterns
awareness of self and others
self-assurance and responsibility in approaching and controlling the environment

As is seen, the proposals differ from each another to a higher degree than in the question of cognition. For our purpose, the older, simpler systems seem to be the best. In Kearney we find a definition of his "attitude and interest" cited above: "The third column provides for items concerned with the basic needs and drives of human beings - the exercise of will, the play of emotion - as these are shown in interests and attitudes" (Kearney 1953, 36). Thus Kearney has the old distinction of classical psychology between emotional and conative acts of the mind. Taba has presented two lines: "values and attitudes" on the one hand and "sensitivities and feelings" on the other.

It would seem an advantage not to bring these two aspects together, and the classification system presented here lists two different aspects, the emotional and the conative.

3.3.3 The creative aspect

In some systems we find creativity as an aspect or level. The "synthesis" of Bloom and his associates is such a creative level as is seen by one of the examples of "synthesis": production of a unique communication (for instance a story). Harklund, who has taken over the concept "synthesis" from Bloom, interpretes the ability of synthesis as the creative ability to combine elements and parts into new structures and patterns. In three of his other "goal functions" he has introduced the creative aspect as well. The fourth level of the "manual functions" is called "constructions" and is defined as the ability and skill to reconsider matters in the use of material, methods and tools, and to solve new problems on the basis of acquired skills and knowledge. The second level of the "aesthetic functions" is "production" in creative art. The fourth level of the "social functions" is called "social creativity". It is said to imply such active and creative participation in the work of the group as promotes co-operation between the individual and the group and between groups. In the social or "interpersonal" domain in the system of Research for Better Schools we also find something of this kind; it is spoken of as "being able to constructively utilize individual differences", and of "skills in creating many group climates".

The creative aspect belongs in all goal areas, however. Creative behaviour is generally thought to require wealth of ideas or originality. Of course, the concept of originality may not be understood here in any other way than in relation to the circle of family, school and friends. Since "synthesis" in the taxonomy of Bloom is placed as a level in the cognitive domain, it may be pointed out that creative behaviour is not only something cognitive; it also has emotion as well as conation as prerequisites.

3.3.4 The functional aspect

A functional aspect is found in Harklund as well, but only in one of his "goal functions", viz. the aesthetic. The third level here is called "function", and it is spoken of as the function of the aesthetic values in everyday life, work and leisure time. This aspect may also belong to all goal areas, however. In all fields of activity in school the ultimate result should be that the pupil (as a pupil but perhaps above all as an adult) functions in an appropriate way in everyday life,

work and leisure time. Such a common aspect was in fact put forward by Kearney, who speaks of "action pattern". His definition of this type of "behavioral change" may be seen as the definition of the functional aspect proposed here: "These are not only the things he knows and can do; they are things he normally does as a matter of course in the various situations he faces. Here we see him carry over his ideals, his 'disposition to do'." (Kearney 1953, 56.) Some of Kearney's examples of "action patterns" are: "takes responsibility for jobs for which he is paid" (65), "is considerate of other persons" (71), "begins to take part in the larger affairs of his community and society" (85), "helps to keep home and school premises clean, sanitary, and orderly" (92), "reads with critical discrimination as to source, relevancy, and dependability of facts" (112).

The functional aspect is here included as the last aspect in the proposed classification scheme. It seems to be an important addition to the aspect dimension.

3.3.5 The aspects defined through verbal forms that may assign descriptions of educational objectives to a certain aspect

The proposed aspects are thus six:

reproduction
higher cognition
emotion
conation
creativity
function

The purport of the different aspects may be elucidated by an enumeration of some verbal forms that are suitable in connection with descriptions of educational objectives. Lists of this type are proposed by other researchers, also, for example, by Metfessel, Michael and Kirsner 1969, and by Gronlund 1970. Some illustrative verbs are given in Box 1. It must be pointed out, however, that much depends on the context in which a verb appears. "Proposes" is here given as belonging to the creative aspect. A proposal does not necessarily imply a creative behaviour, however. In the discussion at our department there was a certain apprehension expressed about the fact that the verb examples assume a different character in different aspects. It was especially

Box 1. Examples of verbal forms that may assign descriptions of educational objectives to a certain aspect	
RE (the reproductional aspect)	mentions, enumerates, defines, describes, gives an account of, retells, reproduces
HC (the higher cognitive aspect)	notices, registers, discriminates, compares, distinguishes between, judges, relates to, values critically, considers, discusses
EM (the emotional aspect)	is pleased with, derives pleasure from, experiences joy in, experiences beauty in, experiences security in, experiences responsibility for, has confidence in, disapproves of, is indignant at, detests
CO (the conative aspect)	is interested in, chooses, looks for, tries to, strives towards, avoids, rejects, refuses
CR (the creative aspect)	forms, gives shape to, draws up, works out, designs, finds, proposes, puts forward, experiments with, improvises, reorganizes
FU (the functional aspect)	takes part in, is active in, is a working member of, makes use of, accepts, respects, observes directions, stands up for, tolerates, resists, improves in

emphasized that verbal forms such as "is pleased with","experiences beauty in" seem to be somewhat diffuse and that consequently the behaviours must be hard to measure. The educational objectives which the scheme is supposed to classify are not confined to (and must not be confined to) the easily measurable, however. Moreover, objectives belonging to the emotional aspect must not necessarily manifest themselves in behaviour identical for all pupils, as may be the case with regard to objectives belonging to the reproductional aspect.

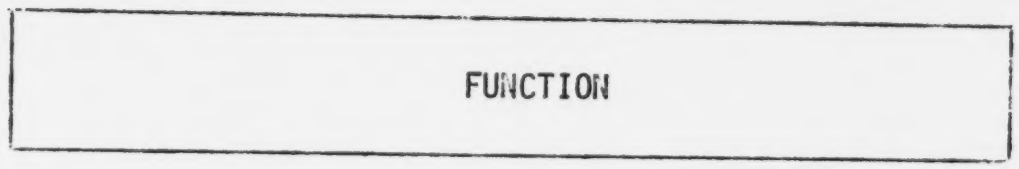
3.3.6 Is the aspect dimension a hierarchial one?

Some of the classification schemes referred to above regard their behaviour-oriented goals as arranged in a hierarchial order. This is the case, for example, in the taxonomies of Bloom and his associates. A hierarchial order means here that the first level is the basis for the second and so on. The higher levels become more and more complex. It may be wondered whether the aspects proposed here are also in hierarchial order.

The answer is that they are hierarchial to some extent but that there are also more complex relations. A paradigm of the six aspects is presented in Figure 2. Several ways of inserting arrows in this paradigm have been tried but it seems possible to put them anywhere. The reader is invited to insert his own arrows.

The functional aspect may be seen as a complex of all the other aspects and thus heads the hierarchial system. There are two problems, however. 1) It seems likely that creativity is not logically a necessary condition for function. On the other hand, if creative behaviour is one of the general educational objectives, it would seem desirable that such a behaviour is behind the function. But this is a question of educational ideals, and the presented system is not meant to be normative. 2) Behaviour belonging to all aspects can in a sense be said to "function" in everyday life, in work and in leisure time. Kearney, in speaking of the "action patterns", says that "in this division, many of the items appearing in previous divisions are mentioned again in terms of their outcomes in the real behaviour of the child". But these "action patterns" all the same, and rightly, as it seems, are seen as an ultimate result based on knowledge and judgment as well as on attitudes and interests: "The fourth division describes the behavior of the child as he uses the knowledge and understanding, the skills and competences

Figure 2. A paradigm of the six aspects as a basis for a discussion of their hierarchial connections. (The reader may insert arrows as he thinks best!)



outlined in the first two divisions. These action patterns are the expression in behavior of the child´s attitudes and interests as outlined in the third division." (Kearney 1953, 56.)

That the higher cognitive objectives build on the lower is obvious. The emotional experience is tied to an object cognitively perceived, but there is hardly any need of real knowledge to be able to delight in a colour that one finds beautiful. On the other hand, intellectual joy is tied to understanding of connections and is thus dependent on judgment. The emotional aspect may be regarded as parallel to the cognitive levels. For the interest (the conative aspect) cognition as well as emotion are a basis. In its capacity as motivation, conation on the other hand has a retrograde effect on cognition.

Behind the creative behaviour (for example the creation of a literary work) is knowledge and judgment as well as feeling and interest. It has already been pointed out that creative behaviour cannot be seen only as cognitive and that it is not (as in the system of Bloom) hierarchially lower than "evaluation".

It can perhaps be said that behaviour belonging to different aspects are always influencing behaviour belonging to all other aspects. Thus, behaviour belonging to the functional aspect will result in acquisition of new knowledge, in higher cognitive behaviour, in new emotional experiences, in new interests, and in creative behaviour.

3.4 Which categories are to be chosen as goal areas?

3.4.1 What is not to be included among the goal areas

a) The aspect dimension

Many areas of educational objectives given as lateral to each other are reproduced in sections 2.1 and 2.3. As was pointed out at the beginning of chapter 2 these areas may be content-oriented as well as behaviour-oriented. As our definition of a goal area is that it is determined by its content, it follows that all behaviour-oriented "areas" are excluded from our list. These "areas" are already considered in the discussion of the aspect dimension.

Thus, the cognitive aspects appear as a goal area in Bloom and Associates (1956), in the Swedish Comprehensive School Curriculum of 1969 (and in Marklund 1969), and in Research for Better Schools (1969).

The emotional aspect is met with as a goal area in Kearney (1953), in the Swedish Education Committee of 1957 (1961) (and hence in the Swedish Comprehensive School Curriculum of 1962), in Bloom and Associates (1956 and 1964), in the Swedish Comprehensive School Curriculum of 1969 (and in Marklund 1969), and in Research for Better Schools (1969). The conative aspect is encountered as a goal area in the Swedish Education Committee of 1957 (1961) ("development of the volitional life") (and hence in the Swedish Comprehensive School Curriculum of 1962), and also in the Swedish Comprehensive School Curriculum of 1969 (and in Marklund 1969), since "emotional functions" are defined as "manifestations of volitional maturity" as well as "manifestations of emotional maturity".

These "goal areas" are excluded here. In the lists of such areas we also find descriptions that may be seen as belonging to the functional aspect. These "areas" are, in the words of the Swedish Education Committee of 1957 (1961) and the Swedish Comprehensive School Curriculum of 1962, "education for leisure time" and "education for family life". Both "areas" are found already in Bobbit (1924), "leisure occupations" and "parental responsibilities" respectively. The "education for leisure time" is also met with in the Swedish Comprehensive School Curriculum of 1969: "directing one´s attention towards giving a developing and valuable content to the leisure time" and perhaps in the rather vague words of Smith and Tyler (1942): "the acquisition of a wide range of significant interests".

As mentioned in chapter 2,the Swedish research project "SK"(which deals with civics in the higher stages of the comprehensive school and also discusses the general educational objectives to be found in the report in 1961 of the Swedish Education Committee of 1957) has noticed the connection between "ethical education" and "education for family life" as well as that between "aesthetic education" and "education for leisure time" (Dahlgren et alia 1968). This connection is easily understood with the help of the classification scheme proposed here. "Education for leisure time" and "education for family life" belong to the functional aspect of different goal areas. Thus it may belong to the functional aspect of the aesthetic goals to pay a visit to an art exhibition during leisure time, and it may belong to the functional aspect of the ethical-social goals to have a good relationship with members of the family. It is to be noticed, however, that goal areas other than the aesthetic one have functional aspects that have links with the leisure time, and that other goal areas than the ethical-social one have

functional aspects that have links with family life. Furthermore, aesthetic education does not, of course, have significance only for leisure time, any more than ethical-social education has significance only for family life.

b) Individual education as opposed to social education

Social education may undoubtedly be seen as a goal area. It is not equally evident that individual education as opposed to social education is a goal area. The dichotomy into individual and social education is a characteristic of the Swedish comprehensive school curricula, however. It appears in the Education Committee of 1957 (1961) and in the Comprehensive School Curriculum of 1962. It reappears in the new curriculum of 1969. In the American systems we find this division, too, in French (1957), where "growing toward self-realization" is one of the main headings and the other two are "growing in ability to maintain desirable small group relationships" and "growing in ability to maintain the relationships imposed by membership in large organizations".

The division into social and social education is not frequent, however. There are logical difficulties, too, when the division is applied. From Figure 1 it can be seen how differently the relation between the concepts and their relation to "personality education" may be understood. The Swedish Education Committee of 1957 (1961) and the Comprehensive School Curriculum of 1962 place "ethical education" and "education for family life" under individual education. These two concepts must be said to be socially oriented to a great extent. The Comprehensive School Curriculum of 1969 enumerates under the heading "individual development" the following goals which may reasonably be seen as belonging to social development: "to develop the wish for good co-operation with others" (General part, p. 13), "contribute to the equalization of differences in the appraisal of different professions and of different working-achievment" (p. 13), "wants to and can do active contributions to social life" (p. 14), "stimulate to participation in club and educational activities inside and outside school" (p. 14), "give a stimulus to activity in and devotion to social and idealistic work" (p. 14).

Individual education (or development) is thus not included among the goal areas.

c) Basic knowledge and skills, all-round education

The Education Committee of 1957(1961) places "basic knowledge and skills" as a goal area side by side with educational objectives of the type

"health education". In the Education Committee of 1946 (1948) we find "all-round education" as such a goal area. To place knowledge side by side with other goal areas is difficult, however, since knowledge belongs to the reproductional aspect, common to all goal areas. It is plain that knowledge of the concepts of art and music belongs to the aesthetic area of educational objectives, and that knowledge of tools may belong to the manual area. However, the Education Committee of 1957 has given a specified content to this concept, "linguistic skills", "mathematical skills" and "information about surrounding reality and the past". The "all-round education" of the Education Committee of 1946 is also defined in a similar way; it is for example spoken of as "the world of numbers". Such specified areas will be introduced in the following.

3.4.2 The ethical-social area

It was just said that social education undoubtedly must be seen as a goal area. In one form or another the concept appears in all the lists. The problem is if the concept "ethical education" must be included (cf. for example Figure 1). It is not easy to draw the boundary between ethical and social goals. This was demonstrated when Yebio (1969) asked a judging group to place different goal descriptions under headings of general educational objectives. Certain descriptions were more or less to the same extent marked as belonging to ethical resp. social education. (Yebio 1969, Appendices 1a and 1b.) It is further to be noted that the Swedish Education Committee of 1946 listed social education as one of the general goals of the school but not ethical education. However, the Committee explicitly mentions "ethical questions" under the heading social education (Skolkommission, 1946 års, 1948, 36).The Swedish Comprehensive School Curriculum of 1969 speaks of "creating regard for truth and justice" (and the latter must be ethical education) as belonging to "the social development of the pupils" (General part, p. 15). The obvious difficulty of distinguishing between ethical and social education makes it advisable to combine them into one goal area. There are, however, occasions, when it seems correct to distinguish between ethical and social education. In respect to certain other goal descriptions than those referred to above, Yebio was presented with a clear standpoint, sometimes in favour of ethical, sometimes of social education. In order to avoid misunderstandings it is proposed here to use the term ethical-social goals. In the Swedish Comprehensive School Curriculum of

1969 the passage on ethical education in the curriculum of 1962 is retained but with a painstaking purge of the word "ethical" (cf. Lgr 69, General part, p. 13 with Lgr 62, p. 16). There is hardly any justification for the dread of this word, however.

3.4.3 The aesthetic area

Another type of value-oriented goals are the aesthetic. There seems to be no question of its being a goal area. It is listed by many earlier systems.

3.4.4 The areas of mental hygiene and of physical training and health

The Swedish Education Committees of 1946 (1948) and 1957 (1961), and thus also the Comprehensive School Curriculum of 1962, speak of "health education". Health can be mental as well as physical, however, and the Swedish Comprehensive School Curriculum of 1969 has put these two together: "imparting knowledge and habits concerning mental and physical health". In the same way French (1957) speaks of "developing behaviors indicative of growth toward personal (involved in maintaining) (indicative of understanding problems of) mental and physical health" (1.3, 2.3, 3.3). Bobbit differentiates between these two, however ("keeping mentally fit" resp. "health"), and so does Smith and Tyler (1942) ("the development of better personal-social adjustment" resp. "the development of physical health"). It is proposed here to make the same distinction into two different goal areas.

When physical health is discussed physical training will easily come into the picture. The LOT-Project (1970) has two different headings, "bodily training" resp. "health/hygiene", but Kearney (1953) speaks of "physical development, health, body care". In the second goal analytical passage in the Swedish Comprehensive School Curriculum of 1969 it is spoken of "physical functions" defined as "physical and physiological adaptation to external conditions of life". The draft by Marklund (1969) behind these wordings has a somewhat more clear division into "physical health", "physical achievement ability", and "physical adaptation". It is proposed here to put physical training and physical health together into one goal area.

In the case of the area of mental hygiene there is some confusion in

the reported classification systems as to if this goal is to be seen as a goal area or as an aspect. In the work of Research for Better Schools (1969) some goals of mental hygiene come under the heading "self actualization", which is said to be the "affective domain" of the Bloom group, however. The goals of mental hygiene is here looked on as a goal area as it is possible to exemplify all aspects under this heading.

3.4.5 The work-oriented, logic-oriented,and manual areas

The same argument is proffered here for including the work-oriented, the logic-oriented and the manual goals in the goal areas, in spite of the fact that they may seem to belong to the aspect dimension.

The work-oriented goals are found in Smith and Tyler (1942) as "the cultivation of useful work habits and study skills", in French (1957) as "improving study habits, study skills, and other work habits" (1.11, not quoted above), and in the Swedish Education Committee of 1957 (1961) and in the Comprehensive School Curriculum of 1962 as "work education". The Comprehensive School Curriculum of 1969 has the more specific "creating pleasure in one´s work" and "interest in studies". The obvious problem is if the work-oriented goals are not examples of the conative aspect. However, as is seen in the quotation from the Comprehensive School Curriculum of 1969, the emotional aspect may be exemplified, too, in this connection. In fact, all aspects can be exemplified, and the work-oriented goals thus are regarded here as a goal area.

The logic-oriented goals are found in Smith and Tyler (1942) as "the development of effective methods of thinking", in French (1957) as "becoming sensitive to, and competent in, the use of logical thinking and problem-solving processes" (1.13, not quoted above), in the Swedish Education Committee of 1957 (1961) and in the Comprehensive School Curricula of 1962 and 1969 as "intellectual schooling", "schooling of the intellect". The problem here is, of course, if the logic-oriented goals are not the higher cognitive aspect. But also in this case the answer is that all aspects can be exemplified, and the logic-oriented goals are here regarded as a goal area. It may be noted that the LOT-Project (1970) has "logical systems" in the "classes of content" in the same way, although "multiple discrimination", "concept learning", "principle learning", and "problem solution" appear on the other axis, in the "classes of behaviour".

In the Swedish Comprehensive School Curriculum of 1969 we find the expression "manual functions". They are defined as "ability and skill in manual work". Here, there is no aspect proposed that could be mixed up with the manual goal area. But the question is if there ought to be such an aspect, a parallel to the "motor-skill (psychomotor) domain" of the Bloom group. Even if this "domain" in a formal way is seen above as a goal area, it is meant to be behaviour-oriented, and, consistently, we find the "psychomotor domain" as a class of behaviour in the LOT-Project (1970). But as said above in section 3.3.1 there is no need in the classification scheme proposed here of a behaviour-oriented motor aspect or group of aspects. (The concept of reproduction comprises motor knowledge, that is reproduction of movements.) Also in the manual goal area all aspects can be exemplified.

3.4.6 The language-oriented, society-oriented, mathematics-oriented, and nature- and technology-oriented areas

In section 3.4.1 the concepts of "all-round education" and "basic knowledge and skills", met with in the Swedish Education Committees of 1946 (1948) and 1957 (1961) were discussed. Although the concepts could not be accepted as notations of a goal area, it was said that the specific goal areas, in reality aimed at, would appear later. What the committees had in view is expressed in the following way in some systems reported above:

Bobbit (1924)

language activities
citizenship
religious activities

Smith and Tyler (1942)

the acquisition of important information
the development of a consistent philosophy of life

Swedish Education Committee of 1946 (1948)

linguistic and mathematical skills
all-round education (defined through examples referring to society and nature, but also to the "world of language" and the "world of numbers")

Kearney (1953)

the social world
the physical world
communication
quantitative relationships

French (1957)

developing behaviors indicative of (growth toward) cultural orientation and integration (1.2, 2.2, 3.2)
developing behaviors indicative of growth toward economic literacy (competence) and independence (1.4, 2.4, 3.4)

Swedish Education Committee of 1957 (1961)

linguistic skills
mathematical skill
information about surrounding reality and the past

Swedish Comprehensive School Curriculum (1969)

awakening the interest in the conception of life and the outlook on society
(basic training in knowledge and skills)

LOT-Project (1970)

understanding of the world around
  natural-science facts
  anthropological and social-science facts
change of the world around
  technology
  politics
guarantee of existence
  transport sources

It seems fairly clear that these different turns of expression can be summarized through four goal areas:
the language-oriented,
the society-oriented,
the mathematics-oriented, and
the nature- and technology-oriented area.

It is possible to make further divisions, however, if this seems desirable in a certain investigation. As has been said already in section 3.1, one could for example divide the society-oriented goals in history-oriented, economy-oriented, conception of life-oriented etc. That could be convenient in an analysis of the general subjects. For our purpose four goal areas seem to be enough, however.

3.4.7 Is the goal area dimension a hierarchial one?

The goal areas are intended to be interindependent, and the goal area dimension is thus not a hierarchial one in the sense that the aspect dimension may be it, that is, the first area is not a basis for the second and so on.

In another sense one can speak of a hierarchial system, however. The ethical-social and the aesthetic goals are both value-oriented goals. The areas of mental and of physical health could be seen as a health-oriented group. In some way the language-oriented, society-oriented, mathematics-oriented, and nature- and technology-oriented areas belong together, though it is hard to find a term for this group concept. A more complicated hierarchy is conceivable, too. As has been said, the society- and nature- and technology-oriented goal areas can be divided into smaller areas.

There is no proper order, however, in which the goal areas should be arranged. Of course, there is the possibility (or probability) that curricula, schools of educational thought, or individuals would wish to rank the goal areas. But as the proposed scheme for classification is not normative, it has no own order of rank. To emphasize this, the goal areas are presented here in alphabetical order:

aesthetic goals
ethical-social goals
language-oriented goals
logic-oriented goals
manual goals
mathematics-oriented goals
goals of mental hygiene
nature- and technology-oriented goals
goals of physical training and health
society-oriented goals
work-oriented goals

4 THE CLASSIFICATION SCHEME

In chapter 3 the discussion has led to the classification scheme proposed here. It is presented as a grid in Figure 3. The numbers inserted in the cells are for use in chapter 5.

As a further illustration examples of goal descriptions are given for every cell in this grid, that is, for every aspect in all the goal areas, in Box 2.

A discussion of the application of the scheme will be given in chapter 5. Here, I will only stress some points in order to avoid misunderstandings in the reading of Box 2.

The examples in this box are meant primarily to illustrate the grid. Secondly, they are intended to demonstrate the fact that there really are goal descriptions that can be placed in all cells.

Since the scheme is not meant to be normative, the examples are not meant to be normative either. There is no intention of saying that the examples are important goals for the school, nor is it supposed that they are all equally important. In the discussion of the scheme I have heard, for example, that some of the language-oriented goal descriptions are rather peripheral. I have no objection. The purpose of the scheme is to demonstrate what a certain person, curriculum or educational ideal regards as important and as less important or unimportant. It could be, however, that another person, curriculum or educational ideal would differ as to what is more or less important. The scheme is an instrument designed to reflect such differences of opinion.

Figure 3. The classification scheme

		A	S	P	E	C	T	S
		Reproduction	Higher cognition	Emotion	Conation	Creativity	Function	
AREAS OF GOALS	Aesthetic goals	(11)	(12)	(13)	(14)	(15)	(16)	
	Ethical-social goals	(21)	(22)	(23)	(24)	(25)	(26)	
	Language-oriented goals	(31)	(32)	(33)	(34)	(35)	(36)	
	Logic-oriented goals	(41)	(42)	(43)	(44)	(45)	(46)	
	Manual goals	(51)	(52)	(53)	(54)	(55)	(56)	
	Mathematics-oriented goals	(61)	(62)	(63)	(64)	(65)	(66)	
	Goals of mental hygiene	(71)	(72)	(73)	(74)	(75)	(76)	
	Nature- and technology-oriented goals	(81)	(82)	(83)	(84)	(85)	(86)	
	Goals of physical training and health	(91)	(92)	(93)	(94)	(95)	(96)	
	Society-oriented goals	(101)	(102)	(103)	(104)	(105)	(106)	
	Work-oriented goals	(111)	(112)	(113)	(114)	(115)	(116)	

FILMED FROM BEST AVAILABLE COPY

Box 2. Examples of goal descriptions for every aspect in all the goal areas

Aesthetic goals

RE Defines the concepts of colour circle and light-dark contrast scale
HC Values critically the choice of colour in pictures
EM Experiences the beauty of the colours in a painting
CO Chooses paintings on account of their colours and colour schemes
CR Experiments with new colour schemes by painting own pictures
FU Takes part in the debate on the colours to be used for houses in new housing areas

Ethical-social goals

RE Defines the concept of deference
HC Discusses the reasons for disagreements between the older and younger generation
EM Experiences responsibility for surpressed groups
CO Tries to get into touch with schoolfellows
CR Draws up an unconventional rules system for the school
FU Respects the individuality of other people

Language-oriented goals

RE Identifies the meaning of (enumerated) foreign words
HC Compares the meanings of words
EM Is pleased to speak own dialect
CO Strives towards expressing an opinion with clarity and pregnancy
CR Forms original composite nouns in essays
FU Speaks a polished language

Logic-oriented goals

RE Describes common logical errors
HC Draws conclusions without logical errors
EM Experiences joy in realizing relations
CO Is interested in examining the tenability of arguments
CR Puts forward hypotheses when meeting a problem
FU Resists biased influence

Manual goals

RE Identifies the tools belonging to a certain field of activities
HC Judges the fitness of different tools for a certain purpose
EM Is pleased to have a chance to use the hands
CO Is interested in handicraft
CR Designes new techniques in manual work
FU Observes safety directions in using machines

Mathematics-oriented goals

RE Defines the concept of per cent
HC Chooses a method of calculation suitable for a certain purpose
EM Is pleased to have solved a mathematical problem
CO Is interested in mathematical solutions
CR Finds "different" ways of solving mathematical problems
FU Makes use of percentages by own buying comparing prices where different rebate schemes are used

Goals of mental hygiene

RE Mentions the qualifications for a certain profession
HC Considers own choice of profession with regard to different relevant factors
EM Experiences security in the knowledge that others have similar difficulties in adjusting themselves
CO Tries to overcome difficulties in adjusting oneself
CR Finds own ways of accepting one's situation
FU Accepts own profession and personal circumstances

Nature- and technology-oriented goals

RE Describes different nature types
HC Relates different factors effecting our environment to another
EM Enjoys nature
CO Rejects leaving litter all over the countryside
CR Finds new ways in which the class can counter-check the leaving of litter all over the countryside
FU Tidies up when having a day in the country

Goals of physical training and health

RE Reproduces the different movements in backstroke
HC Compares the usefulness of different swimming styles
EM Is pleased with getting exercise
CO Is interested in swimming
CR Improvises movements
FU Is a working member of an athletic association

Society-oriented goals

RE Defines the concept of socialism
HC Discusses the justness of sex roles
EM Disapproves of the fact that society has not mastered certain political problems
CO Is interested in the programmes of the political parties
CR Gives shape to a political view separate from conventional ideologies
FU Is politically active

Work-oriented goals

RE Enumerates different techniques of studying
HC Judges what technique of studying is the adequate one in a certain connection
EM Experiences job satisfaction
CO Strives towards achieving a well-made work
CR Works out time-saving methods of work
FU Improves in own profession

5 APPLICATION OF THE CLASSIFICATION SCHEME

Two questions will be dealt with separately in this chapter: 1) in what types of investigations the scheme can be used as an instrument, 2) how the technical problems that arise in using the instrument may be mastered.

5.1 Types of investigations that can use the classification scheme

As has been said above the classification scheme proposed here is not a normative one. It is designed as an instrument for research, i.e. as a method to collect and classify educational objectives that are brought forward anywhere and at any time.

5.1.1 Analyses of objectives stated for a school subject

The scheme was constructed in order to facilitate a systematic collection of objectives stated for the reading of literature at school. The reading of literature may in this connection be regarded as a school subject. In the same way objectives of other school subjects can be surveyed through the classification scheme. It also renders a comparison possible between the treatment of the goals of a certain subject in different curricula, in different countries, and at different times. A practical application may exist during the drawing up of a syllabus for a certain subject. An analysis with the help of the scheme may draw the attention of the author of the syllabus to the fact that there are further possibilities for applying general objectives in the syllabus. Of course, it must be observed that the scheme is not a normative one. The author of the syllabus can reject some of the possibilities, but it is not so easy to forget them. If the objectives stated for the subject are analysed with the help of the scheme, the scheme may also serve as a disposition in order to make the text of the syllabus more easily read and also more easily criticized.

5.1.2 Analyses of objectives stated for a school curriculum

The analysis can also be enlarged to comprise whole curricula for a school or a school system. The same possibilities exist to make comparisons between different curricula, to analyse the drawing up of a new curriculum, and to make it well-arranged.

5.1.3 Analyses of objectives stated by schools of educational thought and by educational thinkers

It must be possible not only to analyse syllabi and school curricula with the help of the scheme but also the writings of individual educationalists and of whole schools of educational thought (as, for example, of the educational ideals of the Enlightenment and of the Romanticism, or of the present Eastern and Western worlds). Since the scheme is suitable for comparisons it could be introduced as a quantitative instrument in research on history of education and in comparative educational research.

5.1.4 Requirement analyses

The scheme may facilitate requirement analyses as the cells of the grid can be placed against each other. If an analysis of, for example, the objectives stated for a school subject has been made with the help of the scheme, suitable goal descriptions belonging to a certain cell may be used in a requirement analysis.

5.1.5 Analyses of evaluation instrument stocks

It ought to be possible to list evaluation instruments (for a certain subject or for the school on the whole) with the help of the scheme, since evaluation instruments must connect with explicitly or implicitly expressed goals. It may be that teaching methods to a certain extent can be listed in the same way.

A practical point of view for the person responsible for evaluation instruments is that he through the classification scheme can find out what need there is of new instruments for checking goals that are adopted in his society.

5.1.6 Working-out of aims programmes

An aims programme calls for a series of goal descriptions that can be arranged in sequenced order. The first problem is to know what the goal descriptions that are laid down in a curriculum in mostly rather vague words really imply. The scheme is of value in this connection, since it is possible with its help to analyse the curriculum and place

its goal descriptions into the cells. It is true that such descriptions often can be placed in two or more cells. The scheme now forces the collector of descriptions to reflect on what really is meant, or, if it actually is a question of two or more thoughts brought together, to break down the description into two or more. Moreover, the scheme may be a help in the sequencing of the goal descriptions as there are hierarchial connections between the aspects.

5.2 Technical problems in the application of the classification scheme

There are three main problems concerning the technical application of the scheme: 1) It may be hard to formulate the expressions occurring in curricula, teaching guides for teachers, articles on education etc. in such words as make it clear to what cell the goal description belongs. 2) How to proceed when a goal description can obviously be placed in two or more cells? 3) How can the scheme be graphically and quantitatively applied?

5.2.1 The formulation of the goal descriptions

A technical term,often used in goal analyses but also often criticized, is terminal behaviour. It is said that a goal description has to state what the pupil does when school instruction on the whole or a certain course is completed. That the description has to say what the pupil does implies that it must be expressed in behavioural terms.

This idea is certainly a behaviouristic approach, and as behaviourism is a school of psychology that has been criticized by other schools of psychology, the concept of terminal behaviour has been criticized, too. However, what really is criticized is the supposition that only such goals should be of interest as can be expressed in behaviours possible to observe and measure quantitatively. It has to be acknowledged that the advancing of goals by society must disregard if the objectives are measurable or not. It is not evaluation but the goals that come first.

On the other hand there is no reason why one should not try to express the goals in terms of what the pupils do. In meeting some objections to the demand for descriptions in behavioural terms, Isenegger (1969, 6) says that the limitations of the behaviouristic approach are

not equally valid for all fields of application. In "the cognitive and psychomotor dimension" many educational objectives may be expressed as behaviours. I would like, however, to go somewhat further. Even in the case of the emotional aspect the goals ought to be expressed in terms of what the pupil does. In Box 1 a series of verbal forms are given that are meant to express the result of the instruction in terms of what the pupil does. Some of these verbal forms may be regarded with suspicion by the true behaviourist. But the idea as such to try to express the goals in terms of what the pupils do is good and is stressed here.

As regards evaluation it must, in the same way, be important that one evaluates through something that the pupil does. This does not mean that it necessarily must be measured quantitatively or that it always must be a question of visible behaviour. In such a case verbal forms as "derives pleasure from", "experiences security in", "has confidence in" should indeed be bad ones. However, it should be possible to verify these behaviours in some way, too. In other words, one must try to evaluate behaviours according to the behaviouristic approach even if one cannot limit the listing of goals to such as are easily measured.

It follows that the terminal behaviour is an ideal goal description. The first task in using the classification scheme proposed here is thus to formulate the goals in terms of what the pupil does.

Sometimes, we find goal descriptions that may be used without reformulation, as in the following examples from Krathwohl et alia (1964).

(Here and in the following reference is made to the numbers inserted in the different cells in Figure 3.)

listens to others with respect (26)

listens to music with some discrimination as to its mood and meaning (12)

completes his homework (116)

interests himself in social problems broader than that of the local community (24)

responds emotionally to a work of art (13)

desires to attain optimum health (94)

develops a plan for regulating his rest in accordance with the demands of his activities (95).

In some other examples from Krathwohl et alia the reformulation needed is very slight.

develops a keen interest in his physical surroundings =

is keenly interested in his physical surroundings (84)

recognition that there may be more than one acceptable point of view =

recognizes that there may be more than one acceptable point of view (42)

the habit of approaching problems objectively =

is in the habit of approaching problems objectively (46).

However, in curricula and syllabi the aims frequently are expressed implicitly, and so one has to transform different types of expressions into goal descriptions. Thus it may be the content of instruction that is described and not the objective. The following examples are taken from the syllabus for domestic science in the Swedish Comprehensive School Curriculum of 1962.

a short survey of the groups of nutritive substances =

gives an account of the groups of nutritive substances (31)

correct work positions =

describes (or reproduces) correct work positions (51)

something about the obligations and rights of the tenant and the landlord =

gives an account of the obligations and rights of the tenant and the landlord (101).

A parallel to the description of the content of instruction is to describe what goes on in school. (Examples from the same syllabus.)

for cooking preliminary work ought to be performed as, for example, to peel, to grate, etc. =

peels (potatoes etc.) (51)

grates (carrots etc.) (51)

the subject domestic science shall contribute to the creating of healthy diet habits =

has healthy diet habits (96)

the practical teaching gives plenty of opportunities for a varied activity which will be further stimulated if the pupils are allowed to take part in the planning of the work of the term as well as of the day =

takes part in the planning of the work of the term and of the day (112).

Often it is spoken about what the teacher does but not about what the pupil does. (Examples from the same syllabus.)

it is advisable that the teacher takes up different methods of cooking and domestic services and in this connection the utilization of and comparisons between different aids and materials =

utilizes and compares different methods, aids and materials in cooking and domestic services (52)

to develop the judgment and critical thinking of the pupils the teacher ought thus to plan the work that they find time to get together in order to judge the return of the day's work and relate it to the aims set up =

judges the return of the day's work and relates it to the aims set up (112).

Sometimes we find more than one behavioural aspect given in the same goal description. We must then construct two (or more) new goal descriptions. This is often the case when we have to differentiate between the emotional and the conative aspects as in this example from the syllabus for domestic science quoted above:

the teacher ought to try to lay the foundation of a positive attitude to housework =

enjoys housework (53) and
is interested in housework (54).

It seems that the word "loves" must always be treated in this way. In another example from the same syllabus we have to differentiate between the higher cognitive and the conative aspects:

from given ingredients groups may prepare dishes according to choice =

prepares dishes from given ingredients (52) and

chooses what dishes to prepare from given ingredients (54).

There is also the possibility that two or more goal areas are put together. In the syllabus for physical training in the Swedish Comprehensive School Curriculum of 1962 we find the following:

an economical and aesthetic way of movement should be aimed at =

moves in an economical (energy-saving) way (112) and

moves in an aesthetic way (12).

In some cases we find goal descriptions that cannot be placed in any cell at all. The fault is not with the classification scheme. The goal descriptions are too general and must be put aside as uninteresting, even if it is possible to guess what the author has meant. Two examples come from the syllabus for physical training just quoted:

instruction in physical training shall contribute to an all-round and harmonious development of the pupils =

is developed in an all-round and harmonious way (0)

instruction in physical training shall be carried on in such a way that the general capacity is improved =

has general capacity (0).

5.2.2 The placing of a goal description into two or more cells

In the preceding section 5.2.1 there was only the question of the formulation of the goal descriptions. In the examples it was possible to place a formulation (if necessary after re-formulation) into one cell of the classification scheme. However, when the scheme is applied, it will soon be obvious that one and the same goal description can be placed into two or more cells. Kearney had the same experience. Seeing it as a weakness in his system he justifies himself: "Despite the logic of any such grid, or outline of behavior and learning materials, there will always be overlapping and duplication between subdivisions. Some of this is due to the impossibility of dividing and categorizing a learning activity into its various parts. Some of it is due to the philosophical

or personal predilections of individual scholars. For our purpose these divisions do not need to be 'watertight'. Our concern is that the goals of education be attended to and that the breadth of opportunities be somewhat obvious." (Kearney 1953, 35.)

The need to place a goal description into two or more cells has a more complicated background than only a weakness in the system, however. There may be two reasons for the necessity to place a goal description into two or more cells:

1) The author of the description has in the same behaviour-describing verbal form comprised two or more meanings. It is not possible, as in the examples in section 5.2.1, to know exactly what the verbal form is supposed to mean. The spreading will occur in the aspect dimension. In this case one must distinguish between two situations, if the scheme is used for classification, for example of the goals of a certain country or curriculum, or if the scheme is used in working out of an aims programme. By classification work the description must be placed in more than one cell. On the other hand, in constructing an aims programme the description cannot be used. It must be broken down into two or more new goal descriptions, each of which can be placed in its own cell.

2) The goal description really belongs to more than one cell. The spreading will occur here in the goal area dimension. Not only in classification work but also in the working out of an aims programme the description must be placed in more than one cell.

1) The spreading in the aspect dimension

The syllabus for physical training in the Swedish Comprehensive School Curriculum of 1962 contains the expression "traffic instruction" but there is no interpretation of what that may imply. Traffic instruction may be seen as belonging to the society-oriented goal area. All the aspects can be exemplified, however. Thus, in constructing an aims programme for traffic instruction we have to think of a series of goal descriptions, as, for example

gives an account of the right-hand rule (101)
crosses the pedestrian crossing when green light is showed (102)
experiences responsibility for old people in traffic (103)
tries to behave with forethought in traffic (104)

works out a new method of increasing the security of cycling (of the type bicycle-stick) (105)
is active in a motorist association (106).

The syllabus for domestic science in the same curriculum stresses that the instruction should "cultivate the taste of the pupils" and speaks later of "aesthetic viewpoints on home furnishing". These expressions surely represent the aesthetic goal area, but it is hard to know to what aspect they belong. The goal descriptions could be broken down into several, however, as, for example, into

reproduces accepted rules for how colours match (11)
values critically how the colours of different carpets match the colour of the furniture in a room (12)
derives pleasure from a room where the colours match (13)
rejects a furnishing where the colours do not match (14)
finds a small coloured article that gives a room a new look (15)
makes use of aesthetic insights by furnishing one's own home (16).

As has been said, in the working out of an aims programme the vague expressions quoted from the curriculum are of very little use. They must be replaced by new goal descriptions. In the analysis of a certain curriculum etc. it is of interest that a certain goal area is represented, however, even if there is no specific cell to put the description into. In the two examples given we could place the vague descriptions in all the six cells belonging to the specific goal area. But this is perhaps not the best way. For example, one really does not know if the syllabi have included the possibility of objectives belonging to the creative aspect. It is thus proposed here to enlarge the classification scheme with a new column at the left of the aspect columns (with the new numbers 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110) as is seen in Figure 4.

2) The spreading in the goal area dimension

There are also goal descriptions in curricula etc. that could be placed in several cells spreading in the goal area dimension. This is the case when they express a certain behaviour, that is, belong to a certain aspect, although the content of instruction is not given. In an analysis of a certain curriculum etc. it is of interest to note these types of goals even if there is no proper cell to put the goal description into. Such a description could be placed in all the eleven goal areas.

But as one cannot exactly know that all these areas are referred to, it would be best, also in this case to enlarge the classification scheme, i.e. with a new line below the goal areas (with the numbers 01, 02, 03, 04, 05, 06) as is seen in Figure 4.

The goal descriptions (not mentioning any content) can, for example, have the following appearance:

describes to some extent the world we are living in (01)
observes independently (02)
extraxts pleasure from one's life (03)
acquires new interests (04)
performs creative work (05)
feels respect for life in its various manifestations (06).

In treating the spreading in the goal area dimension we have up to now dealt only with analyses of curricula etc. When we come to the working out of an aims programme we find that the spreading in the goal area dimension is not necessarily a result of vague goal descriptions but may express an important fact. Let us contemplate the following goal descriptions:

defines cowardice (21, 71)
defines independence (21, 71)
describes how kindness breeds love (21, 71)
gives an account of the complexity of human relationship (21, 71)

notices that there are other people very like one self (22, 72)
discovers that other people, too, have problems to wrestle with (22, 72)
registers that it is hard to be an ordinary decent person (22, 72)
discusses human behaviour (22, 72)

These two groups of goal descriptions belonging to the reproductional and the higher cognitive aspect respectively have been placed in the area of ethical-social goals as well as in the area of the goals of mental hygiene. Obviously, they are important for the building up of both ethical-social and mental hygienic functions. Even if there is some connection between these two goal areas even on the functional level, since mental equilibrium will result in better relations with others (the goal description "does not seek revenge in spite of disappointment and wrath" may be placed in cell 26 as well as in cell 76), this does not imply that one cannot speak of two specific goal areas.

Figure 4. The classification scheme enlarged

GOAL AREAS	ASPECTS						
	Aspect not specified	Reproduction	Higher cognition	Emotion	Conation	Creativity	Function
Aesthetic goals	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Ethical-social goals	(20)	(21)	(22)	(23)	(24)	(25)	(26)
Language-oriented goals	(30)	(31)	(32)	(33)	(34)	(35)	(36)
Logic-oriented goals	(40)	(41)	(42)	(43)	(44)	(45)	(46)
Manual goals	(50)	(51)	(52)	(53)	(54)	(55)	(56)
Mathematics-oriented goals	(60)	(61)	(62)	(63)	(64)	(65)	(66)
Goals of mental hygiene	(70)	(71)	(72)	(73)	(74)	(75)	(76)
Nature- and technology-oriented goals	(80)	(81)	(82)	(83)	(84)	(85)	(86)
Goals of physical training and health	(90)	(91)	(92)	(93)	(94)	(95)	(96)
Society-oriented goals	(100)	(101)	(102)	(103)	(104)	(105)	(106)
Work-oriented goals	(110)	(111)	(112)	(113)	(114)	(115)	(116)
Goal area not specified	(0)	(01)	(02)	(03)	(04)	(05)	(06)

Regarding the aims of instruction in literature it is evident that there may be goals that are important for aesthetic education but that at the same time are language-oriented goals, as the following goal descriptions show:

describes the sound effect of language (11, 31)
reads aloud from easy stories with understanding and expression (12, 32)
experiences the beauty of language (13, 33).

This fact is of importance in the working out of aims programmes. An illustration is attempted in Figure 5, where the hierarchial viewpoint is observed, too. It seems possible that an application of the scheme could be to contribute to the analysis of the problems of co-operation between different subjects in school.

5.2.3 The graphic and quantitative application of the scheme

There are at least two methods of using the classification scheme proposed here in a graphic and quantitative way.

1) Noting only the existence and non-existence of goal types

If we are only interested in what cells are represented or not represented in a certain syllabus, curriculum, etc., we could use the graphic representation method exemplified in Figure 6.

This example is not fictitious, since it is founded on an examination of a real syllabus for a so-called practical subject. However, this going through was rather cursory and, for that reason, the source will not be mentioned. The aim here is only to give an example of the graphic way of representing such an investigation.

If we regard the graph as a result of a careful inspection of this syllabus, we will at once notice the character of the subject in that all cells of the manual goal area are marked. We can also see, for example, that the author of the syllabus has tried to attach weight to the ethical-social goals of the school, but we can also see that the aesthetic aims do not play an important role. That the cell furthest to the left in the ethical-social area is empty may imply that the syllabus is not trying to give the pupils knowledge of, for example, ethical-social concepts. This may be very reasonable, but if this investigation had been made in connection with a revision of the curriculum,

Figure 5. The spreading in the goal area dimension seen from a hierarchial viewpoint

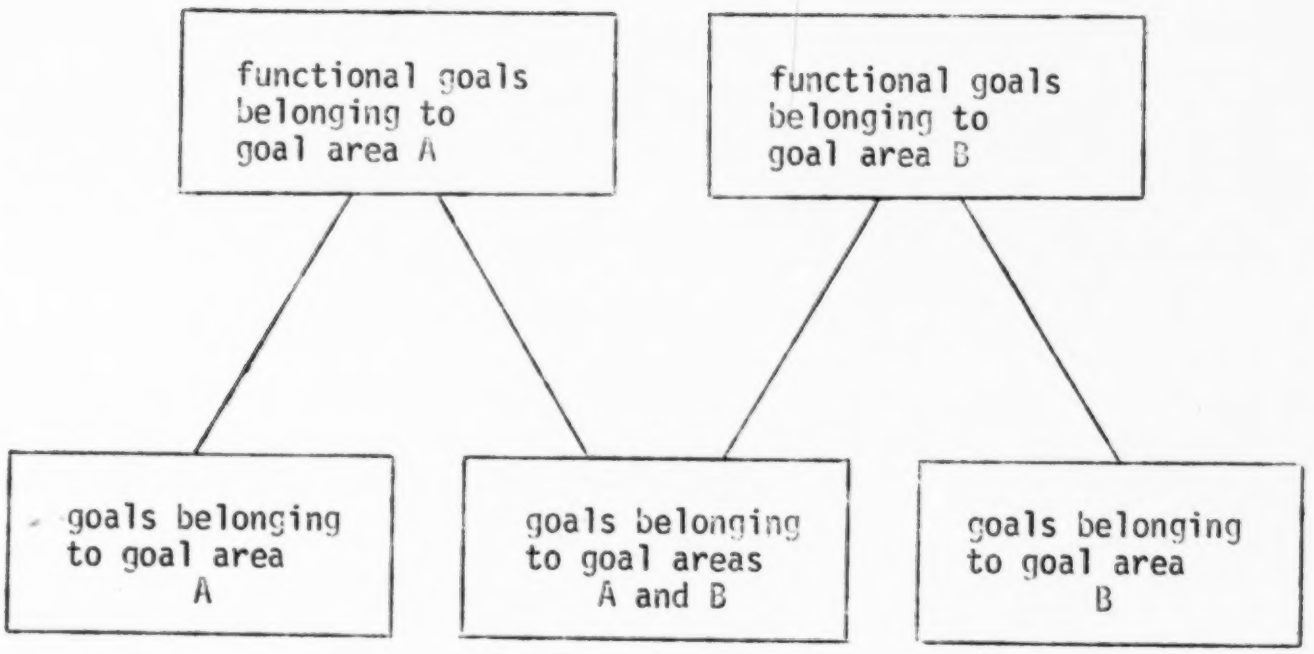

functional goals belonging to goal area A
functional goals belonging to goal area B
goals belonging to goal area A
goals belonging to goal areas A and B
goals belonging to goal area B

Figure 6. A graphic representation of the goal descriptions found in a syllabus for a certain school subject (only existence or non-existence of goal types noted)

	RE	HC	E.i	CO	CR	FU
Aesth	x					
Eth-soc		x	x	x	x	x
Language-or						
Logic-or	x	x				
Manual	x	x	x	x	x	x
Math-or		x				
Dent hyg						x
Na-techn-or	x	x		x		
Ph tr-health	x	x		x		x
Soc-or	x	x		x	x	x
Work-or		x	x	x		x

it would have been important to check that this knowledge was given in another subject.

It is possible that this type of representation could give specific patterns that could be used in different connections.

He could, for example, compare a certain syllabus or curriculum with what is found by a treatment of a great many curricula, debate articles, and so on, perhaps from different countries. It could thus be seen, if a syllabus is a fairly common one, or if it is more unique demonstrating a differring pattern.

Patterns could perhaps be used in research on the history of education and in comparative educational research, too.

2) Giving numbers and (or) percentages including summings-up in the margins

As is seen in Figure 6 the creative aspect is represented in three goal areas. However, we have no idea of how often such goal descriptions occur and what role creativity is in fact playing in this syllabus. It would thus be better to note the number (and maybe percentages) of the goal descriptions in the different cells. The classification scheme could be used directly for entering the goal descriptions as tallies in the cells.

As an example of the possible use of the classification scheme in research on the history of education we could think of a comparison between the educationalists of the Enlightenment and of the Romanticism. It seems conceivable that already the graphs of these movements of the type shown in Figure 6 would demonstrate differences, the graph of the Enlightenment having more marks in the cognitive columns, the graph of the Romanticism in the emotional and creative columns, since the educational ideal of the Enlightenment could be said to be to impart knowledge, the educational ideal of the Romanticism to stimulate feeling and imagination. However, it is possible that there would be marks in the cognitive as well as in the emotional and creative columns of both movements. Surely, a quantitative approach would be more informative.

In surveying a certain syllabus, curriculum, etc. there is no sampling problem. Such a problem will occur when we, for example, try to reach the characteristics of the educational thought of the Enlightenment and Romanticism. The sampling problem will be the same as in

other educational research, however. With controlled samplings the differences between different lines of thought, etc. can be analysed by the usual statistical procedures.

+

The application of the classification scheme will be further exemplified in another report from the LIGRU Project: "A theoretical analysis of objectives stated for the reading of literature at school".

6 REFERENCES

Bloom, Benjamin S., ed.

1956 Taxonomy of educational objectives. The classification of educational goals. Handbook I: Cognitive domain. David McKay Company. New York.

Brubacher, John S.

1966 A history of the problems of education. 2nd ed. McGraw-Hill Book Company. New York etc.

Dahlgren, Hans et alia

1968 Analys och tolkning av målen för grundskolan. (=Analysis and interpretation of the goals of the Swedish Comprehensive School.) Pedagogiska institutionen, Göteborgs universitet. December, 1968. (Stenciled.)

Flechsig, Karl-Heinz - Garlichs, Ariane - Haller, Hans-Dieter - Heipcke, Klaus - Schlösser, Heide

1970 Probleme der Entscheidung über Lernziele. Begründung und Aufriss des Forschungsplans zum LOT-Projekt. (= Problems of deciding upon instructional objectives. Reasons for and plan of the LOT-Project.) In: Programmiertes Lernen, Unterrichtstechnologie und Unterrichtsforschung 7, 1-32.

French, Will and Associates

1957 Behavioral goals of general education in high school. Russell Sage Foundation. New York.

Gronlund, Norman E.

1970 Stating behavioral objectives for classroom instruction. The Macmillan Company, Collier-Macmillan Limited, London (printed in the USA).

Isenegger, Urs

1969 Versuch einer Funktionsanalyse von Taxonomien. (= An attempt to a functional analysis of taxonomies.) Arbeitspapiere und Kurzberichte 5. Pädagogisches Institut, Universität Freiburg (Fribourg, Switzerland).

Kearney, Nolan C.

1953 Elementary school objectives. A report prepared for the Mid-Century Committee on outcomes in elementary education. Russell Sage Foundation. New York.

Krathwohl, David R. - Bloom, Benjamin S. - Masia, Bertram B.
1964 Taxonomy of educational objectives. The classification of educational goals. Handbook II: Affective domain. David McKay Company. New York.

Marklund, S.
1969 Utvärdering av undervisningsresultaten. (= Evaluation of the outcomes of instruction.) Skolöverstyrelsen (= The National Board of Education). Stockholm. (Stenciled.)

Metfessel, Newton S. - Michael, William B. - Kirsner, Donald A.
1969 Instrumentation of Bloom's and Krathwohl's taxonomies for the writing of educational objectives. In: Psychology in the schools 6, 227-231.

Research for Better Schools, Inc.
1969 Basic program plan humanizing learning program submitted by Research for Better Schools, Inc. to the Division of Educational Laboratories, Bureau of Research, U.S. Office of Education. Philadelphia.

Scriven, Michael
1967 The methodology of evaluation. In: Perspectives of curriculum evaluation. AERA monograph series on curriculum evaluation. Rand McNally & Company. Chicago, 39-83.

Simon, Anita - Boyer, E. Gil
1967 Mirrors for behavior. An anthology of classroom observation instruments (= Classroom interaction newsletter. Vol. 3, No. 2.January, 1968. Special edition in cooperation with Research for Better Schools, Inc.) Philadelphia, Penn.

Skolberedning, 1957 års
1961 Grundskolan. Betänkande avgivet av 1957 års skolberedning VI. (= The Comprehensive School. Report submitted by the Education Committee of 1957, VI.) (Statens offentliga utredningar 1961:30.) Stockholm.

Skolkommission, 1946 års
1948 Betänkande med förslag till riktlinjer för det svenska skolväsendets utveckling. (A report (submitted by the Education Committee of 1946) proposing guiding principles for the development of the Swedish educational system.) (Statens offentliga utredningar 1948:27.) Stockholm.

Skolutredning, 1940 års

1944 Skolan i samhällets tjänst. Frågeställningar och problemläge. 1940 års skolutrednings betänkanden och utredningar I. (= The school in service of society. Issues and problem position. Reports of the Education Committee of 1940, I.) (Statens offentliga utredningar 1944:20.) Stockholm.

Skolöverstyrelsen (= The National Board of Education)

1962 Läroplan för grundskolan. (= Curriculum for the Comprehensive School.) (Kungl. Skolöverstyrelsens skriftserie 60.) Stockholm. (Abbreviated Lgr 62.)

Skolöverstyrelsen (= The National Board of Education)

1969 Läroplan för grundskolan. 1. Allmän del. (= Curriculum for the Comprehensive School. 1. General part.) Svenska utbildningsförlaget Liber. Stockholm. (Abbreviated Lgr 69.)

Smith, Eugene R. - Tyler, Ralph W. and the Evaluation Staff

1942 Appraising and recording student progress. Adventure in American education, Vol. III. Harper & Brothers. New York, London.

Taba, Hilda

1962 Curriculum development. Theory and practice. Harcourt, Brace & World. New York, Burlingame.

Yebio, Bereket

1969 Social fostran: begreppsanalys och målsättningsdiskussion. (= Social education: concept analysis and goal discussion.) Pedagogisk-psykologiska problem 82. Pedagogisk-psykologiska institutionen, Lärarhögskolan i Malmö (= Malmö School of Education). April, 1969. (Stenciled.)